Date: April 7, 2017

Prepared by: **GCME, Inc.**

TO: HDR
3125 W Commercial Blvd, Suite 130
Fort Lauderdale, FL 33309

Attention: Mr. Will Suero, P.E.
Project Manager

SUBJECT: **Geotechnical Services Report**
PD&E Services for I-95 at Broward Boulevard Interchange
Broward County, Florida
FPID No.: 435513-1-22-01
GCME Project No.: 2000-01-16004

Dear Mr. Suero,

GCME, Inc. has completed the Geotechnical Service Report, which included review of all existing geotechnical information in connection with the subject project and completed six (6) borehole permeability tests (BHP) at the project site as requested by your office. The purpose of this report is to provide geotechnical information to the roadway / drainage / bridge engineers and for preparation of the plans for the proposed alternatives / improvements.

The BHP tests were performed using the usual open-hole, constant head methodology as advocated by the South Florida Water Management District (SFWMD). The boreholes were 10 feet deep and completed as an open well with gravel pack (6-20 silica sand). The well screen slot width was 0.020 inches. Water from the drill rig tank was then pumped into the open well, and the amount of water required to maintain a constant head in the pipe was recorded. The approximate locations of the borehole permeability tests are presented on Plate 1. The soil profiles are presented on Figure 1 and the BHP test results are presented in Table 1. The laboratory test results are presented in Table 2. The corrosion test results are presented in Table 3.

We have collected and reviewed the available geotechnical information along the project corridor, and are detailed as follows:

A. USDA, SCS Soil Information

Research of the U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS) Soil Survey of the Broward County area indicates the presence of different soil map units along the roadway sections.

The soil map units present along the project corridor are as follows:

- Arents-Urban land complex
- Basinger fine sand
- Duette-Urban land complex
- Immokalee, limestone substratum-Urban land complex
- Immokalee-Urban land complex
- Udorthents
- Urban land

➢ Based on the SCS Maps; no unsuitable soils are found in this area.

A segment of the USDA Soils Map showing the proposed roadway section and the surrounding areas is presented in Appendix – A.

B. <u>Existing Soil Boring Information from Previous Projects along the Project Corridor:</u>

Based on the existing geotechnical information received from your office, we have separated the available information proximate to the proposed project corridor into three (3) sections as follows:

Section-1: Double Ring Infiltration Tests and Percolation Tests

Section-2: Roadway

Sectionn-3: Structures

The existing soil boring information applicable to each Sections 1, 2 and 3 are accordingly presented in Appendix – B.

Based on existing information and our experience along the corridor, we understand that the project corridor is chiefly underlain by mineral soils (i.e., sands with some silt). We anticipate that the proposed improvements will not encounter major organic/unsuitable subsoil deposits, which will require special consideration during the design phase. We understand that the subsoils have moderate to high capacity to transmit water. Bridge structures within the corridor could be replaced or widened using prestressed concrete pile (PSC) foundations.

-oo0oo-

We are pleased to be of continued service to HDR, Inc. and the Florida Department of Transportation (FDOT). If you have any questions or comments regarding the contents of the following report, please call.

Very truly yours,

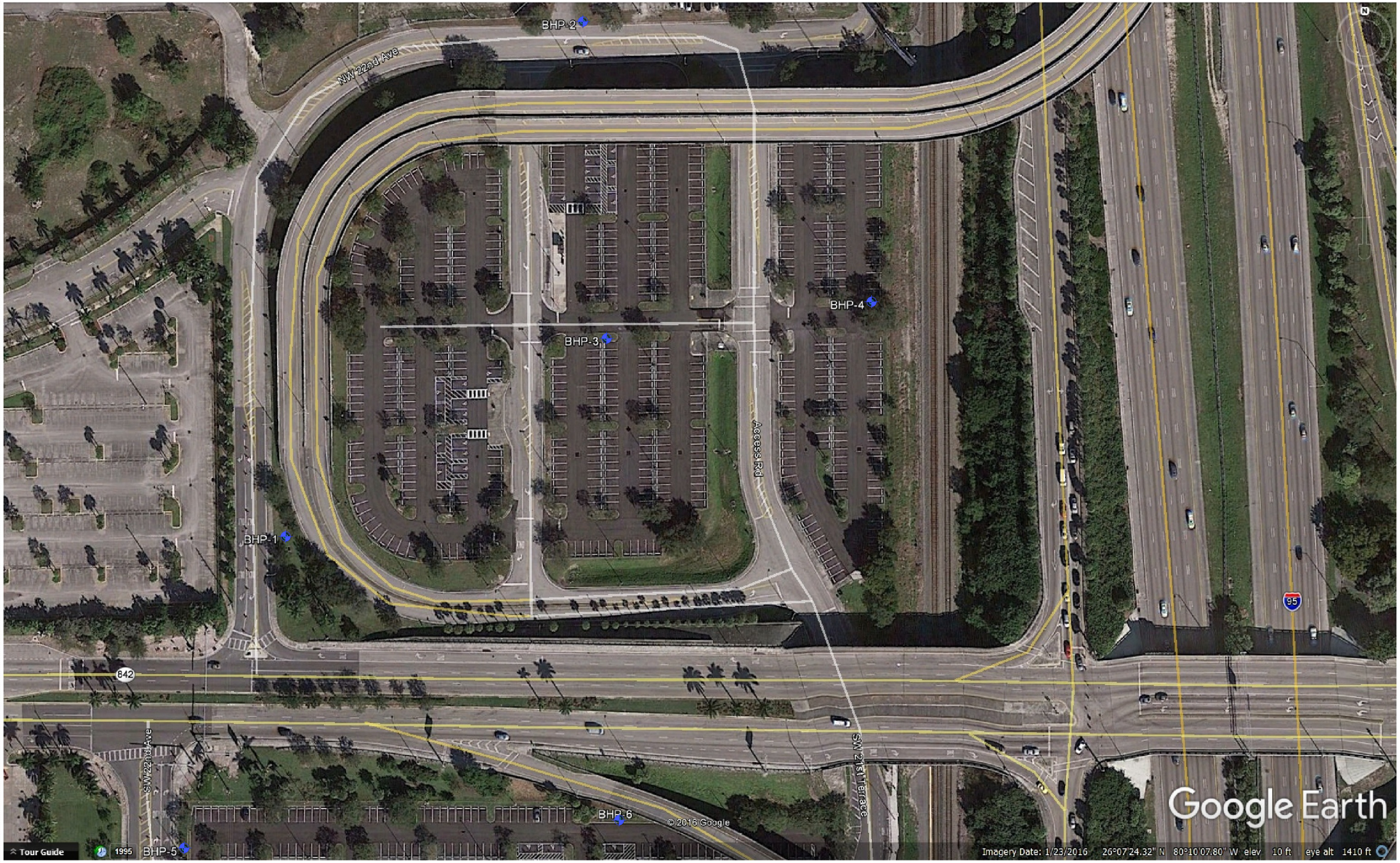
GCME, INC.

Zhijun Pan, P.E.
Project Geotechnical Engineer
FL. Reg. No. 70634

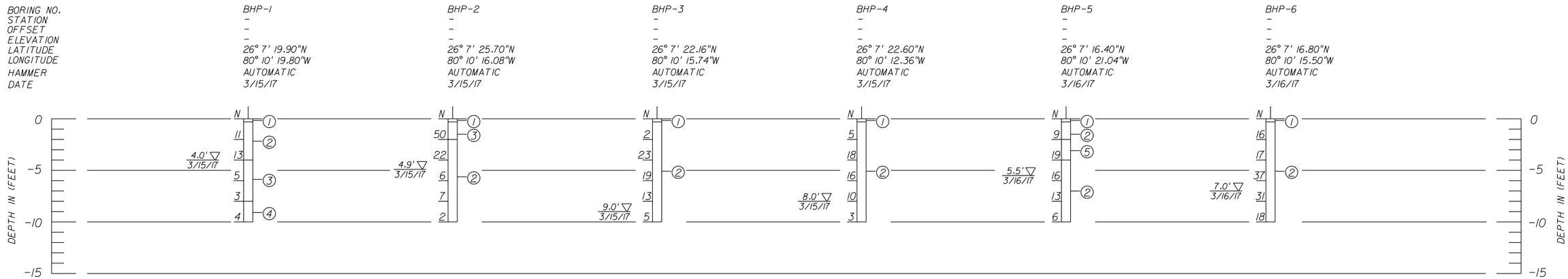
Partha Ghosh, P.E.
Principal Engineer
FL Registration No. 51377

Appendices:

Plate 1	Approximate Boring Location Plan
Figure 1	Soil Profiles
Table 1	Borehole Permeability Test Results
Table 2	Laboratory Test Results
Table 3	Corrosion Test Results
Appendix - A	USDA, SCS Soil Information
Appendix - B	Existing Soil Boring Information from Previous Projects Along the Project Corridor



REVISIONS						ENGINEER OF RECORD: PARTHA GHOSH, P.E. LICENSE NO. 51377 GCME, INC. 1730 W. 10TH STREET RIVIERA BEACH, FLORIDA 33404 CERTIFICATE OF AUTHORIZATION NO. 9076	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			APPROXIMATE BORING LOCATION PLAN PLATE-1	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					LEGEND: BHP - Borehole Permeability Test		842	BROWARD	435513-1-22-01		



LEGEND

1. DARK BROWN SAND WITH TRACE ROOTS (TOPSOIL / A-8)
2. LIGHT BROWN TO BROWN SAND (A-3)
3. LIGHT BROWN SILTY SAND AND SOME LIMEROCK FRAGMENTS (A-1-b/A-2-4)
4. LIGHT BROWN SANDY TO SILTY LIMESTONE
5. DARK BROWN SAND WITH TRACE ORGANIC (A-3)

NOTES

- ▽ GROUNDWATER LEVEL RECORDED ON THE DATE OF DRILLING.
- GNE: WATER TABLE NOT ENCOUNTERED WITHIN THE DEPTH OF EXPLORATION.
- DRILLED BY: JIMMY
- COORDINATES INFORMATION ARE MEASURED BY HANDHELD GPS.
- STATION / OFFSET / ELEVATION INFORMATION ARE NOT AVAILABLE.

N - STANDARD PENETRATION RESISTANCE IN BLOWS PER 12 INCHES.

(A-3) - AASHTO SOIL SYMBOL

SCALE: 1"=10'V

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

ENGINEER OF RECORD:
PARTHA GHOSH, P.E. LICENSE NO. 51377
GCME, INC.
1730 W. 10TH STREET
RIVIERA BEACH, FLORIDA 33404
CERTIFICATE OF AUTHORIZATION NO. 9076

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-01

SOIL PROFILES

SHEET NO.

GCME PROJECT NO. 2000-01-16004

NOTICE: THE OFFICAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C

FIGURE: 1

TABLE - 1

BOREHOLE PERMEABILITY TEST RESULTS

Project: PD&E Services for I-95 at Broward Boulevard Interchange

BHP No.	Date	Bore Hole Dia. (in)	Depth of Hole (ft)	GWT Depth (ft)	Flow Rate Q [gal/min]	K [cfs/ft^2]	K [ft/day]
BHP-1	03/15/17	8.00	10.0	4.00	0.50	1.63E-05	1.41
BHP-2	03/15/17	8.00	10.0	4.75	4.00	1.15E-04	9.93
BHP-3	03/15/17	8.00	10.0	9.00	18.00	3.75E-04	32.44
BHP-4	03/15/17	8.00	10.0	8.00	10.00	2.16E-04	18.63
BHP-5	03/16/17	8.00	10.0	5.50	3.00	7.82E-05	6.76
BHP-6	03/16/17	8.00	10.0	7.00	3.00	6.84E-05	5.91

TABLE - 2

SUMMARY OF LABORATORY TESTING RESULTS

Project: PD&E Services for I-95 at Broward Boulevard Interchange

Boring No.	Sample Depth (ft)			Stratum	AASHTO Symbol	Natural Moisture Content (%)	Organic Content (%)	Atterberg Limits			Sieve Analysis								
								LL (%)	PL (%)	PI (%)	3/4"	3/8"	#4	#10	#20	#40	#60	#100	#200
BHP-1	4.0	-	6.0	3	A-1-b	13.67					100.00	70.93	58.79	53.02	49.47	41.18	27.29	20.20	13.76
BHP-1	6.0	-	8.0	3	A-2-4	17.64					93.56	79.05	71.66	68.14	65.88	59.27	35.71	19.73	14.17
BHP-2	0.0	-	2.0	3	A-1-b	4.17					82.87	70.16	60.15	47.61	37.75	31.93	26.67	19.45	14.06
BHP-2	6.0	-	8.0	2	A-3	21.05					100.00	100.00	99.51	99.41	98.57	79.82	37.38	11.71	6.44
BHP-3	4.0	-	6.0	2	A-3	1.68					100.00	100.00	100.00	100.00	99.79	91.74	52.28	5.00	2.80
BHP-3	8.0	-	10.0	2	A-3	21.52					100.00	100.00	100.00	100.00	99.72	91.90	49.26	5.04	1.34
BHP-4	2.0	-	4.0	2	A-3	0.48					100.00	100.00	100.00	100.00	99.28	90.42	38.84	6.60	1.08
BHP-4	8.0	-	10.0	2	A-3	24.10					100.00	100.00	100.00	100.00	99.71	91.30	34.02	3.63	1.32
BHP-5	2.0	-	4.0	5	A-3	17.20	2.16												
BHP-5	4.0	-	6.0	2	A-3	20.65					100.00	100.00	100.00	100.00	99.68	91.53	37.39	5.38	1.11
BHP-5	8.0	-	10.0	2	A-3	24.13					100.00	100.00	100.00	99.89	99.39	91.11	63.84	13.50	1.41
BHP-6	2.0	-	4.0	2	A-3	4.58					100.00	92.04	88.92	87.27	85.85	77.16	48.86	8.10	4.80
BHP-6	6.0	-	8.0	2	A-3	20.45					100.00	100.00	100.00	100.00	99.69	92.59	63.97	11.14	1.31

TABLE - 2

SUMMARY OF LABORATORY TESTING RESULTS

Project: PD&E Services for I-95 at Broward Boulevard Interchange

Boring No.	Sample Depth (ft)			Stratum	AASHTO Symbol	Natural Moisture Content (%)	Organic Content (%)	Atterberg Limits			Sieve Analysis								
								LL (%)	PL (%)	PI (%)	3/4"	3/8"	#4	#10	#20	#40	#60	#100	#200
BHP-2	6.0	-	8.0	2	A-3	21.05					100.00	100.00	99.51	99.41	98.57	79.82	37.38	11.71	6.44
BHP-3	4.0	-	6.0	2	A-3	1.68					100.00	100.00	100.00	100.00	99.79	91.74	52.28	5.00	2.80
BHP-3	8.0	-	10.0	2	A-3	21.52					100.00	100.00	100.00	100.00	99.72	91.90	49.26	5.04	1.34
BHP-4	2.0	-	4.0	2	A-3	0.48					100.00	100.00	100.00	100.00	99.28	90.42	38.84	6.60	1.08
BHP-4	8.0	-	10.0	2	A-3	24.10					100.00	100.00	100.00	100.00	99.71	91.30	34.02	3.63	1.32
BHP-5	4.0	-	6.0	2	A-3	20.65					100.00	100.00	100.00	100.00	99.68	91.53	37.39	5.38	1.11
BHP-5	8.0	-	10.0	2	A-3	24.13					100.00	100.00	100.00	99.89	99.39	91.11	63.84	13.50	1.41
BHP-6	2.0	-	4.0	2	A-3	4.58					100.00	92.04	88.92	87.27	85.85	77.16	48.86	8.10	4.80
BHP-6	6.0	-	8.0	2	A-3	20.45					100.00	100.00	100.00	100.00	99.69	92.59	63.97	11.14	1.31

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SUMMARY OF LABORATORY TESTING RESULTS

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Boring No.	Sample Depth (ft)			Stratum	AASHTO Symbol	Natural Moisture Content (%)	Organic Content (%)	Atterberg Limits			Sieve Analysis								
								LL (%)	PL (%)	PI (%)	3/4"	3/8"	#4	#10	#20	#40	#60	#100	#200
BHP-1	4.0	-	6.0	3	A-1-b	13.67					100.00	70.93	58.79	53.02	49.47	41.18	27.29	20.20	13.76
BHP-1	6.0	-	8.0	3	A-2-4	17.64					93.56	79.05	71.66	68.14	65.88	59.27	35.71	19.73	14.17
BHP-2	0.0	-	2.0	3	A-1-b	4.17					82.87	70.16	60.15	47.61	37.75	31.93	26.67	19.45	14.06

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Boring No.	Sample Depth (ft)			Stratum	AASHTO Symbol	Natural Moisture Content (%)	Organic Content (%)	Atterberg Limits			Sieve Analysis								
								LL (%)	PL (%)	PI (%)	3/4"	3/8"	#4	#10	#20	#40	#60	#100	#200
BHP-5	2.0	-	4.0	5	A-3	17.20	2.16												

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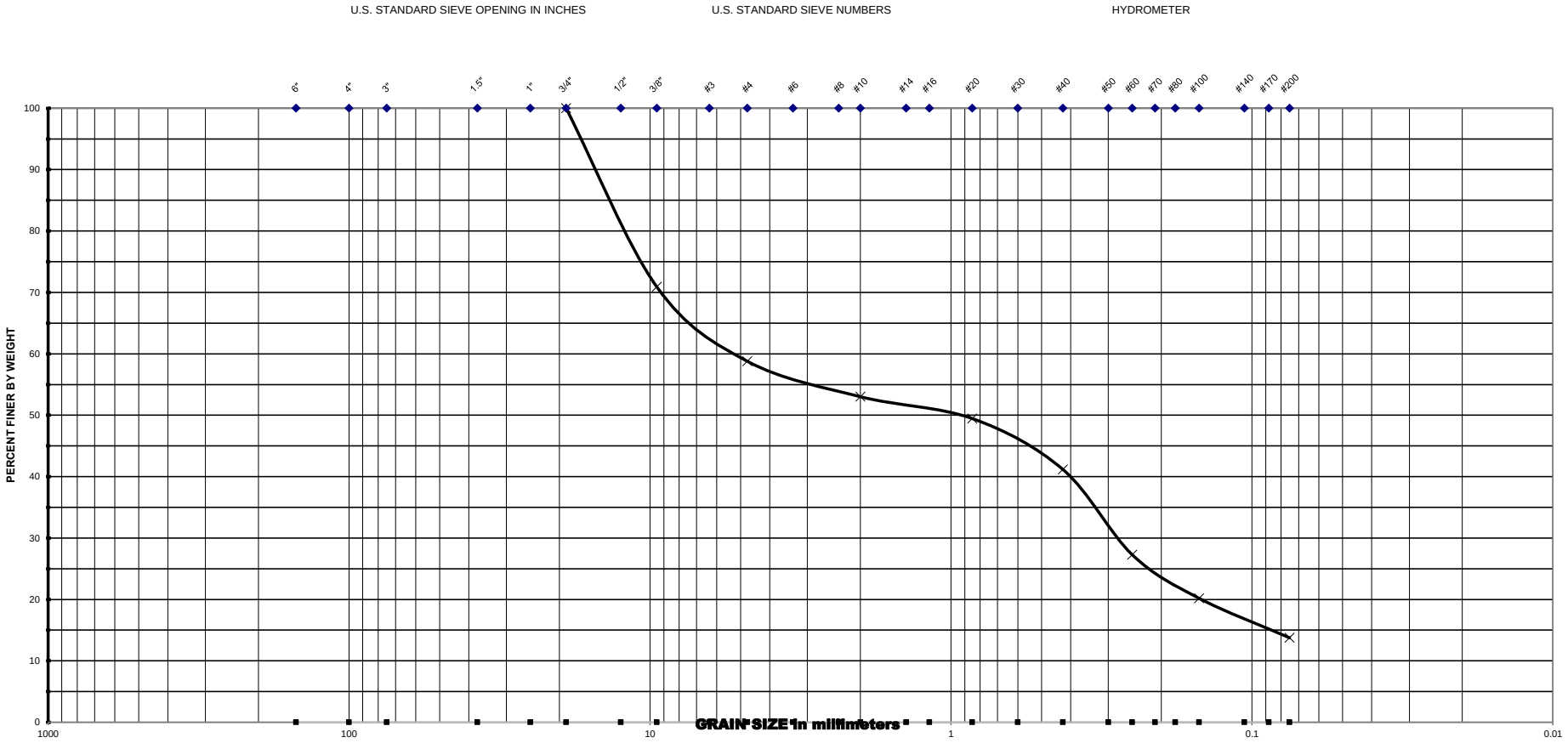

Project Name : PD&E Services for I-95 at Broward Boulevard Interchange

Project No. : 2000-01-16004 **Date :** 3/20/2017

BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-1	4.0 - 6.0	A-1-b	13.7	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	100.0
3/8"	70.9
#4	58.8
#10	53.0
#20	49.5
#40	41.2
#60	27.3
#100	20.2
#200	13.8

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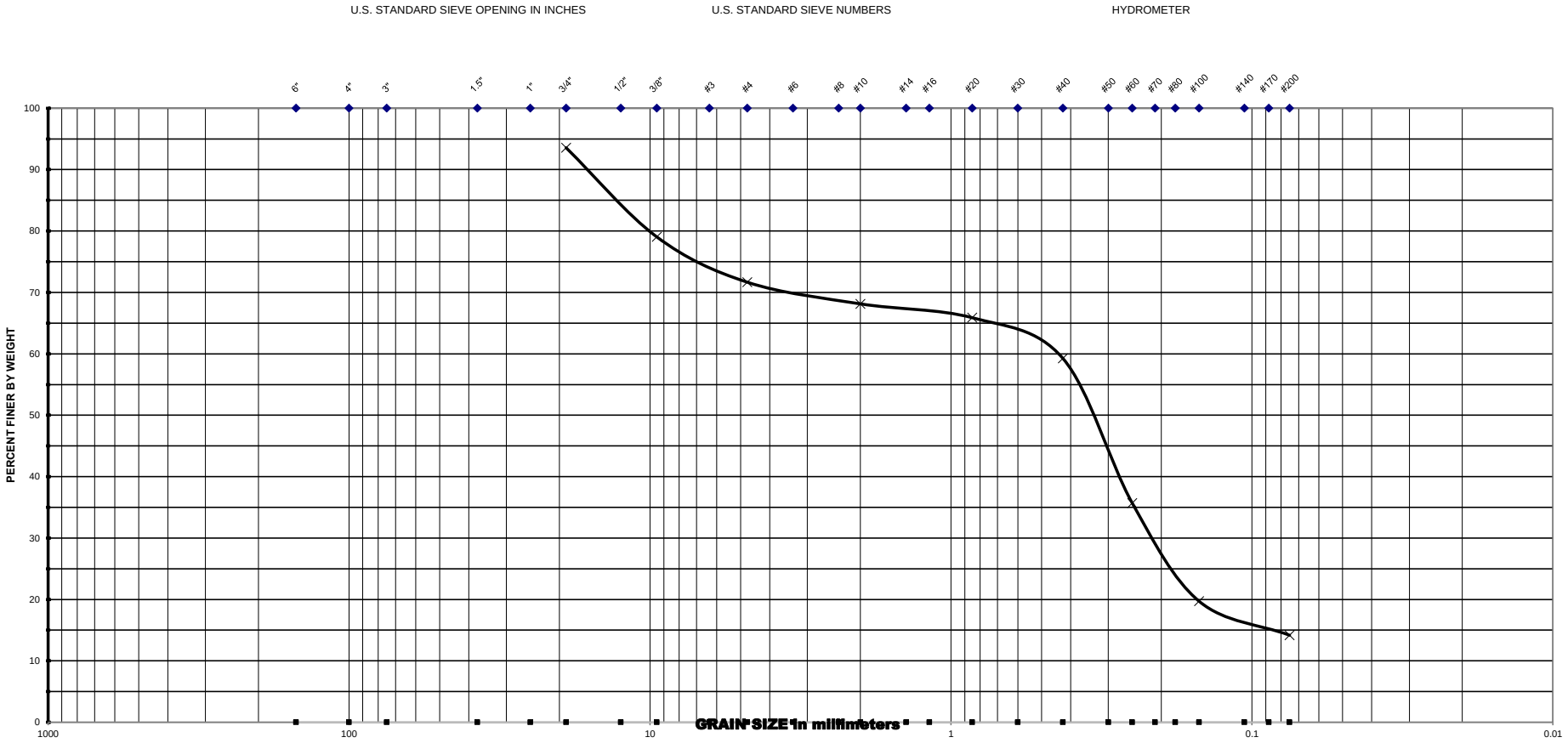

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BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-1	6.0 - 8.0	A-2-4	17.6	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	93.6
3/8"	79.1
#4	71.7
#10	68.1
#20	65.9
#40	59.3
#60	35.7
#100	19.7
#200	14.2

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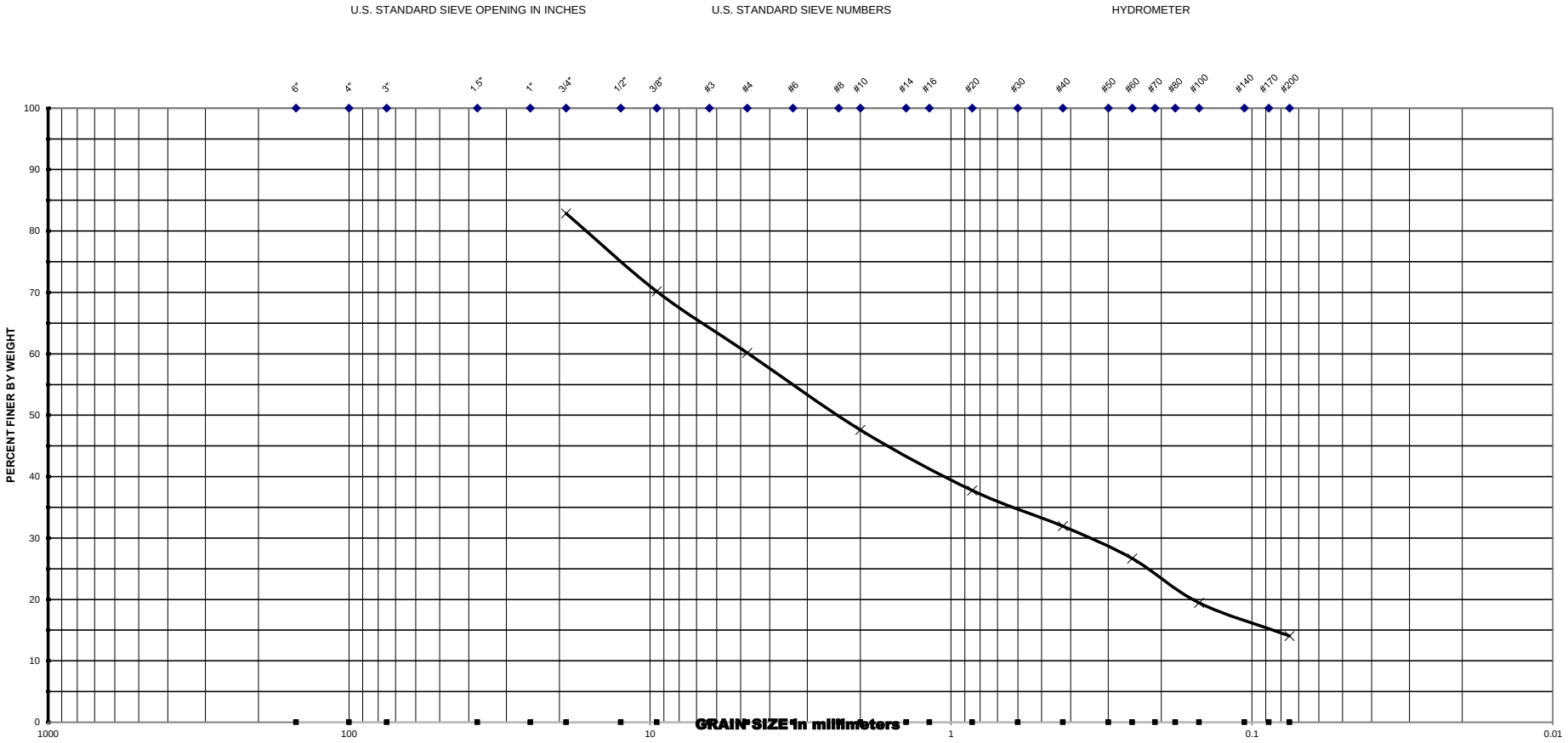

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Project No. : 2000-01-16004 **Date :** 3/20/2017

BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-2	0.0 - 2.0	A-1-b	4.2	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	82.9
3/8"	70.2
#4	60.2
#10	47.6
#20	37.8
#40	31.9
#60	26.7
#100	19.5
#200	14.1

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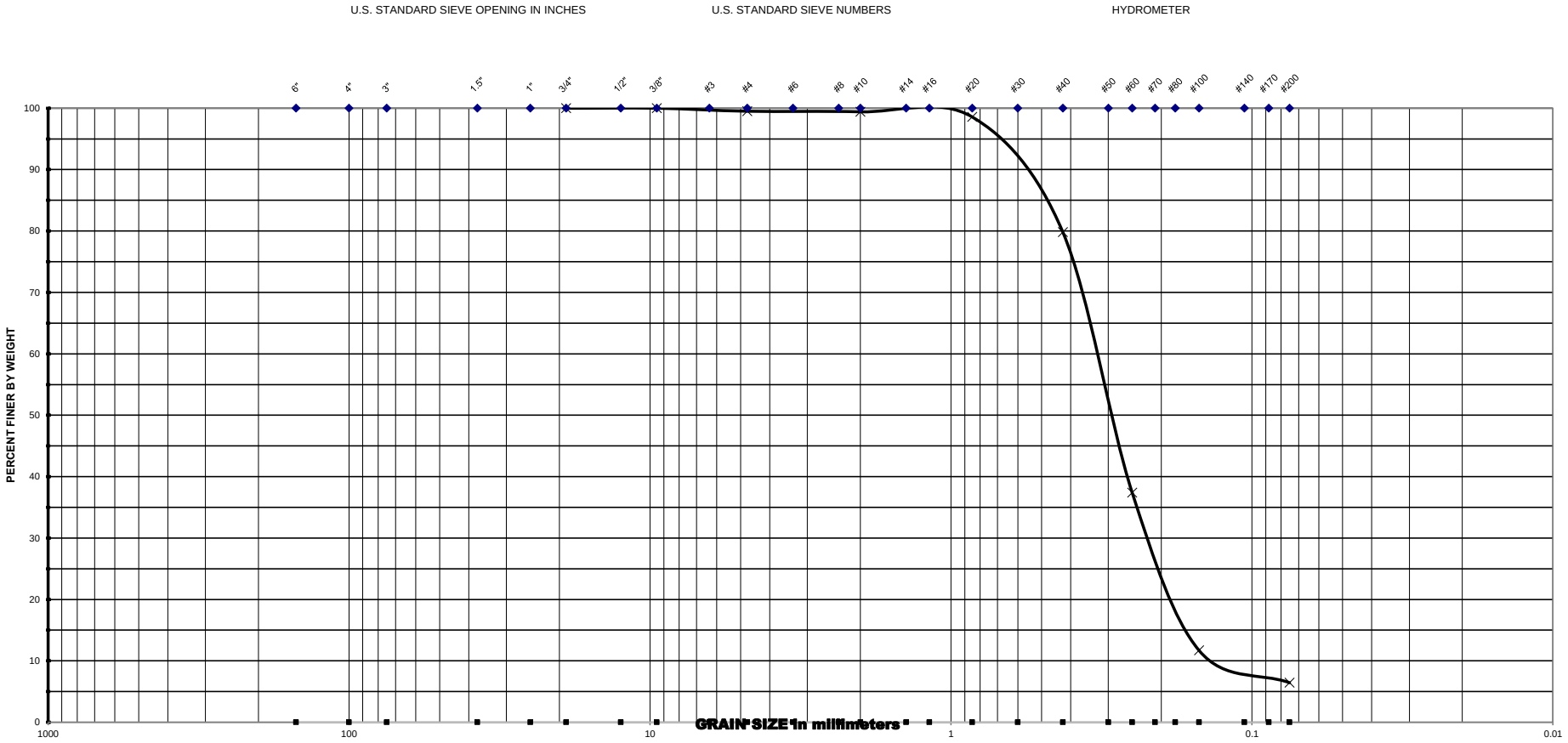

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BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-2	6.0 - 8.0	A-3	21.1	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	100.0
3/8"	100.0
#4	99.5
#10	99.4
#20	98.6
#40	79.8
#60	37.4
#100	11.7
#200	6.4

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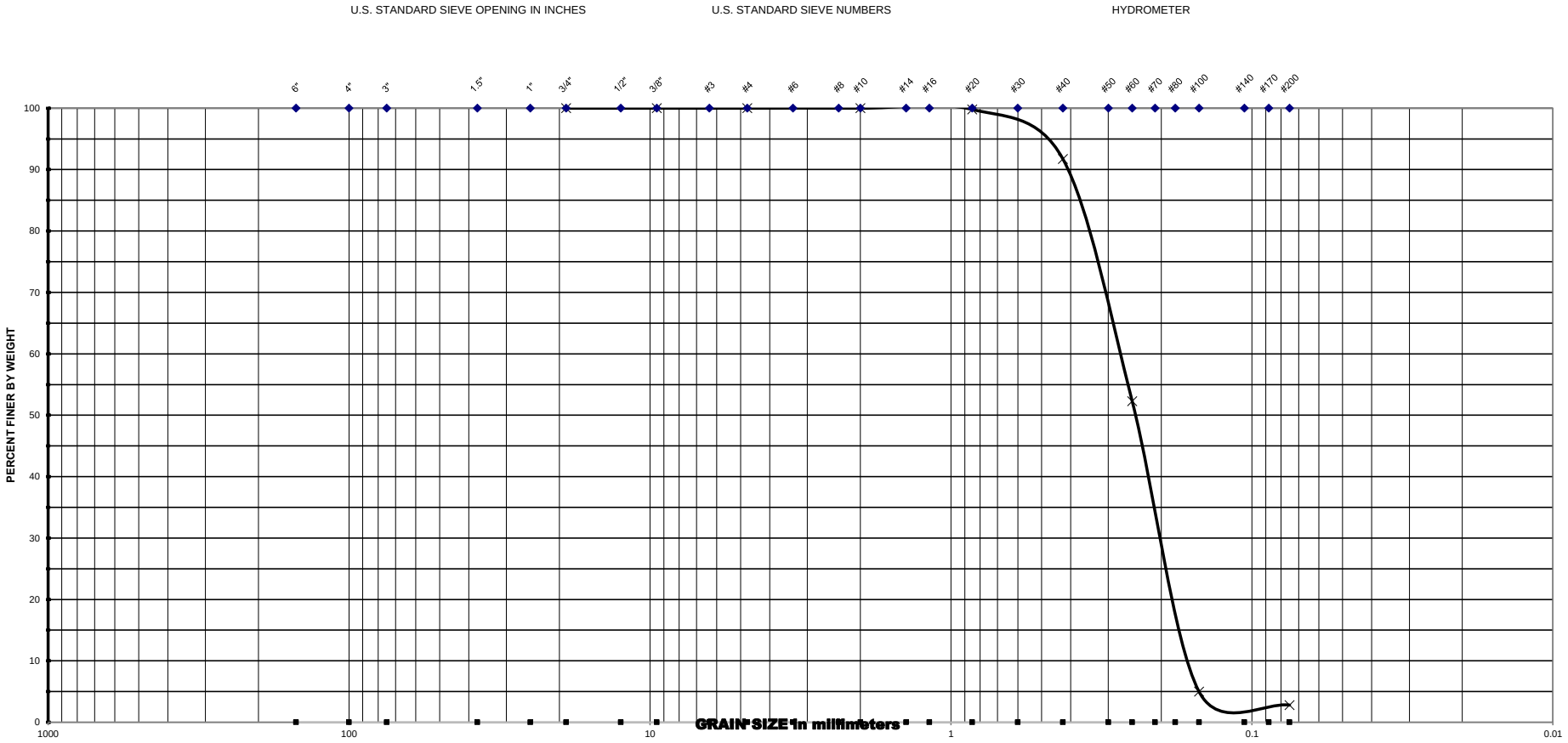

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Project No. : 2000-01-16004 **Date :** 3/20/2017

BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-3	4.0 - 6.0	A-3	1.7	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	100.0
3/8"	100.0
#4	100.0
#10	100.0
#20	99.8
#40	91.7
#60	52.3
#100	5.0
#200	2.8

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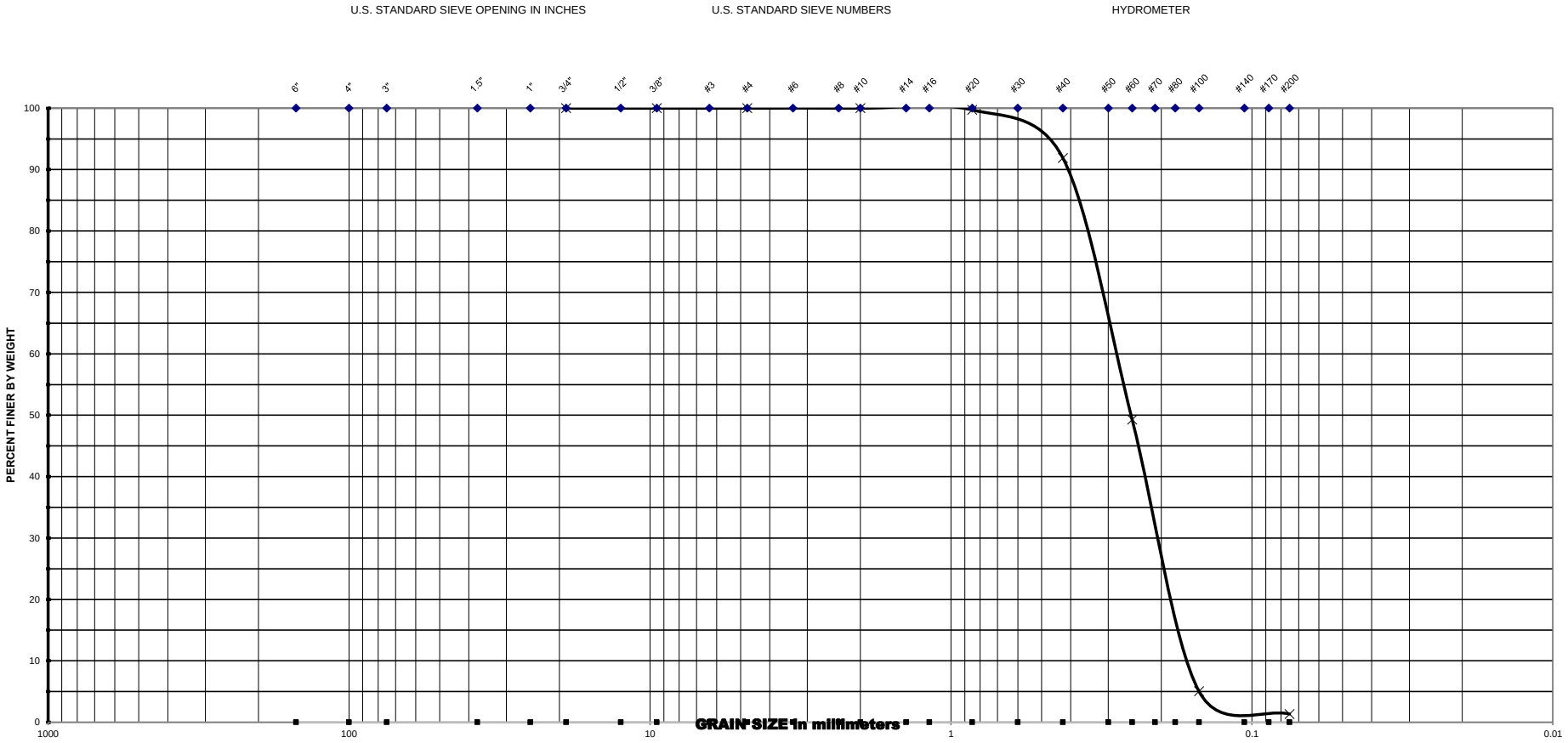

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Project No. : 2000-01-16004 **Date :** 3/20/2017

BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-3	8.0 - 10.0	A-3	21.5	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	100.0
3/8"	100.0
#4	100.0
#10	100.0
#20	99.7
#40	91.9
#60	49.3
#100	5.0
#200	1.3

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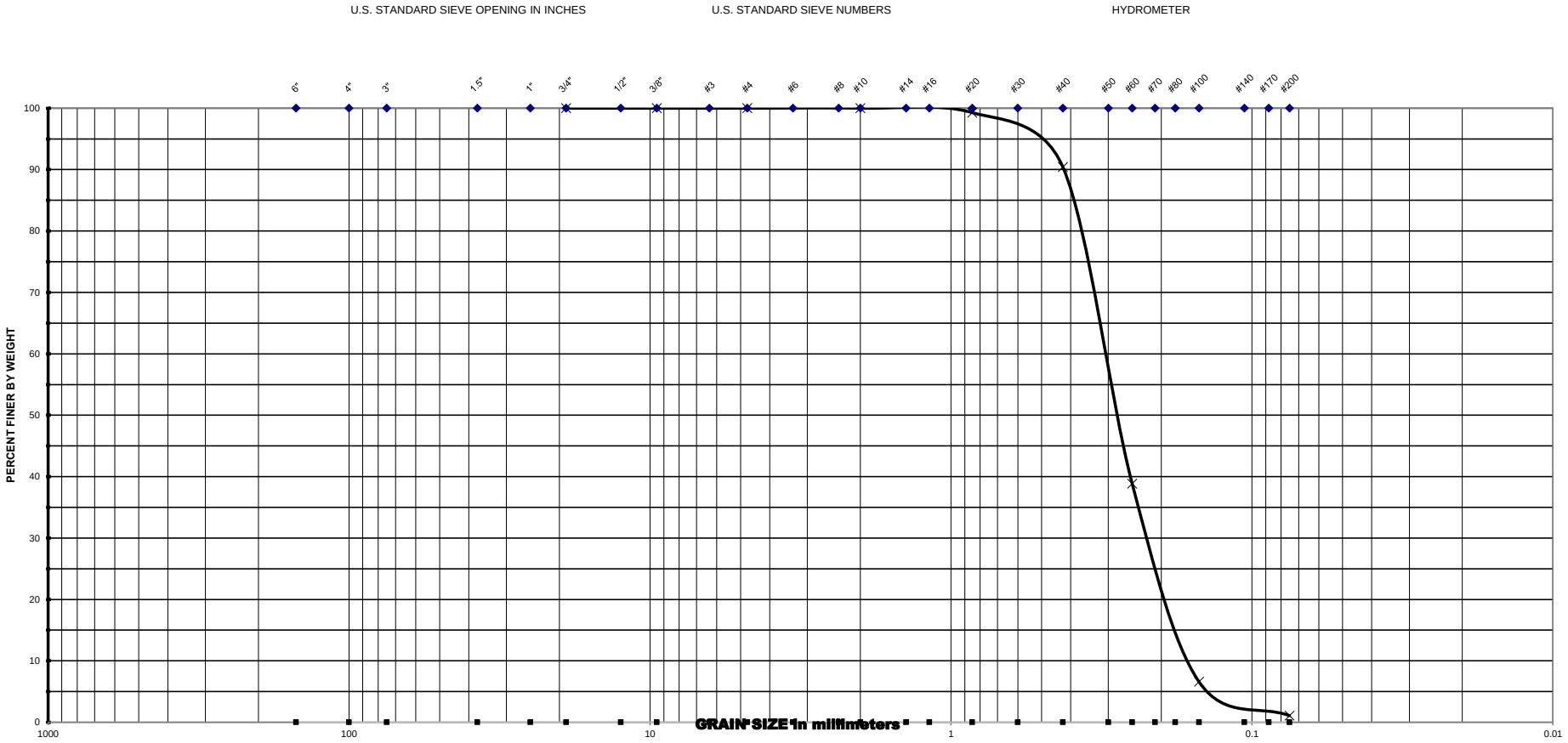

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Project No. : 2000-01-16004 **Date :** 3/20/2017

BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-4	2.0 - 4.0	A-3	0.5	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	100.0
3/8"	100.0
#4	100.0
#10	100.0
#20	99.3
#40	90.4
#60	38.8
#100	6.6
#200	1.1

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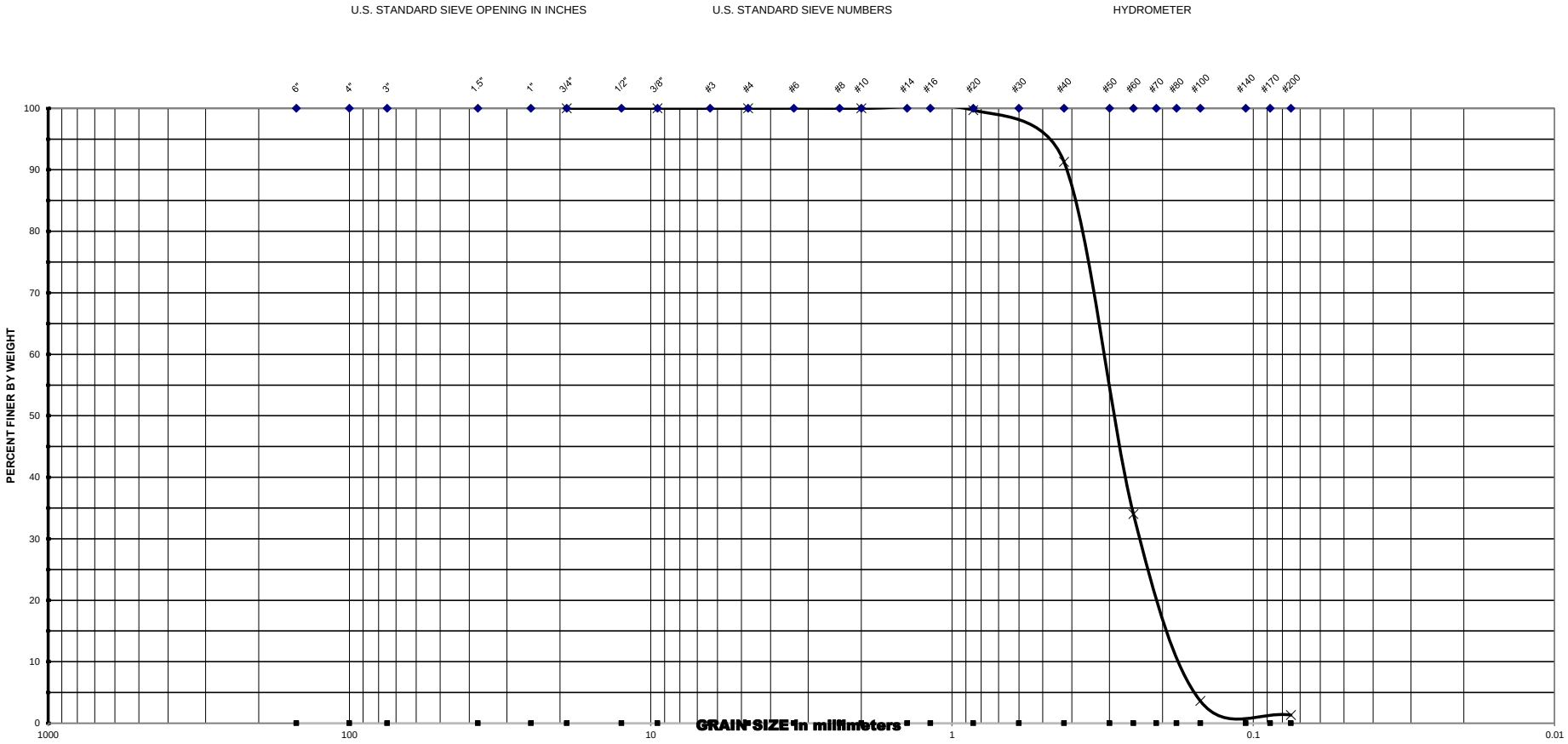

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BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-4	8.0 - 10.0	A-3	24.1	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	100.0
3/8"	100.0
#4	100.0
#10	100.0
#20	99.7
#40	91.3
#60	34.0
#100	3.6
#200	1.3

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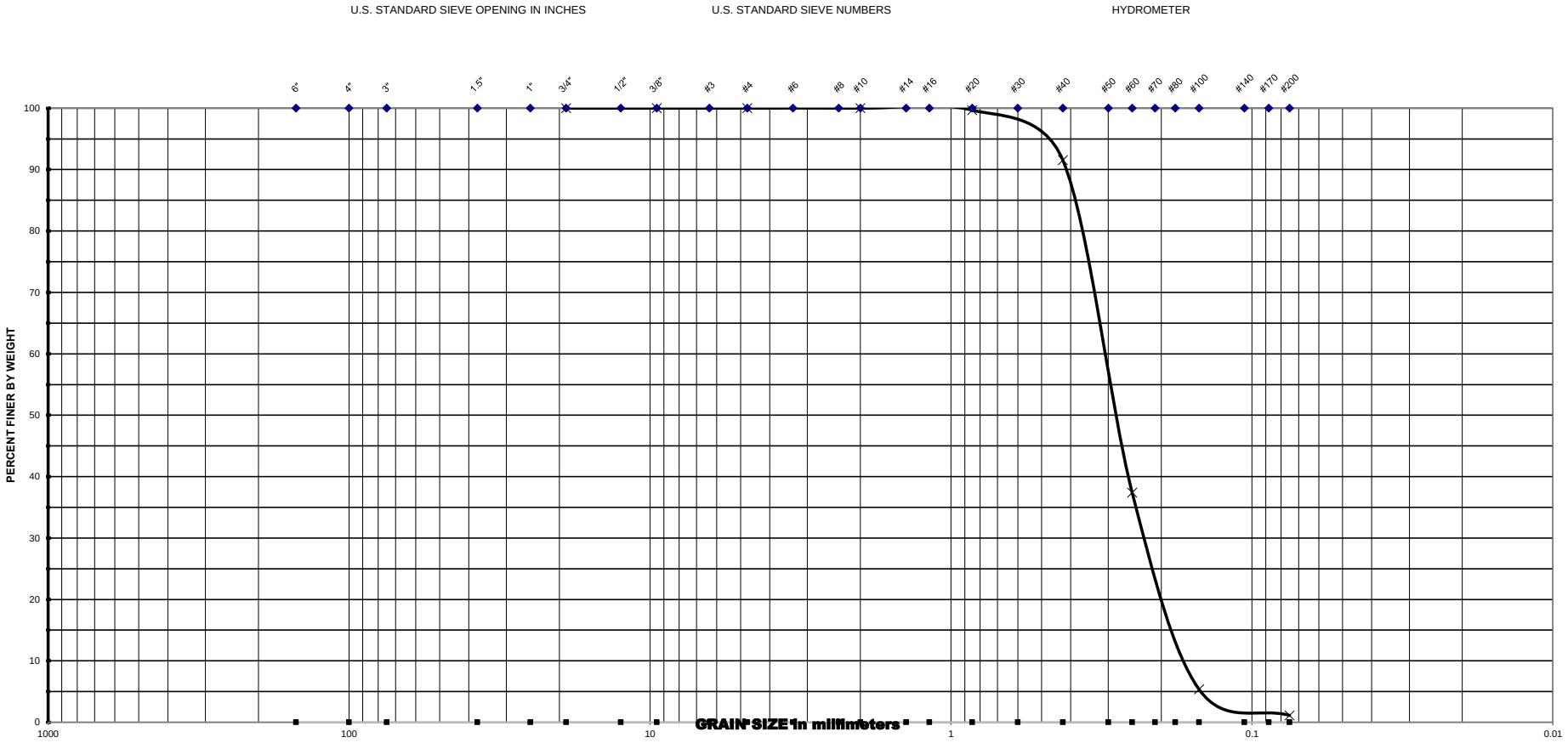

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BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-5	4.0 - 6.0	A-3	20.7	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	100.0
3/8"	100.0
#4	100.0
#10	100.0
#20	99.7
#40	91.5
#60	37.4
#100	5.4
#200	1.1

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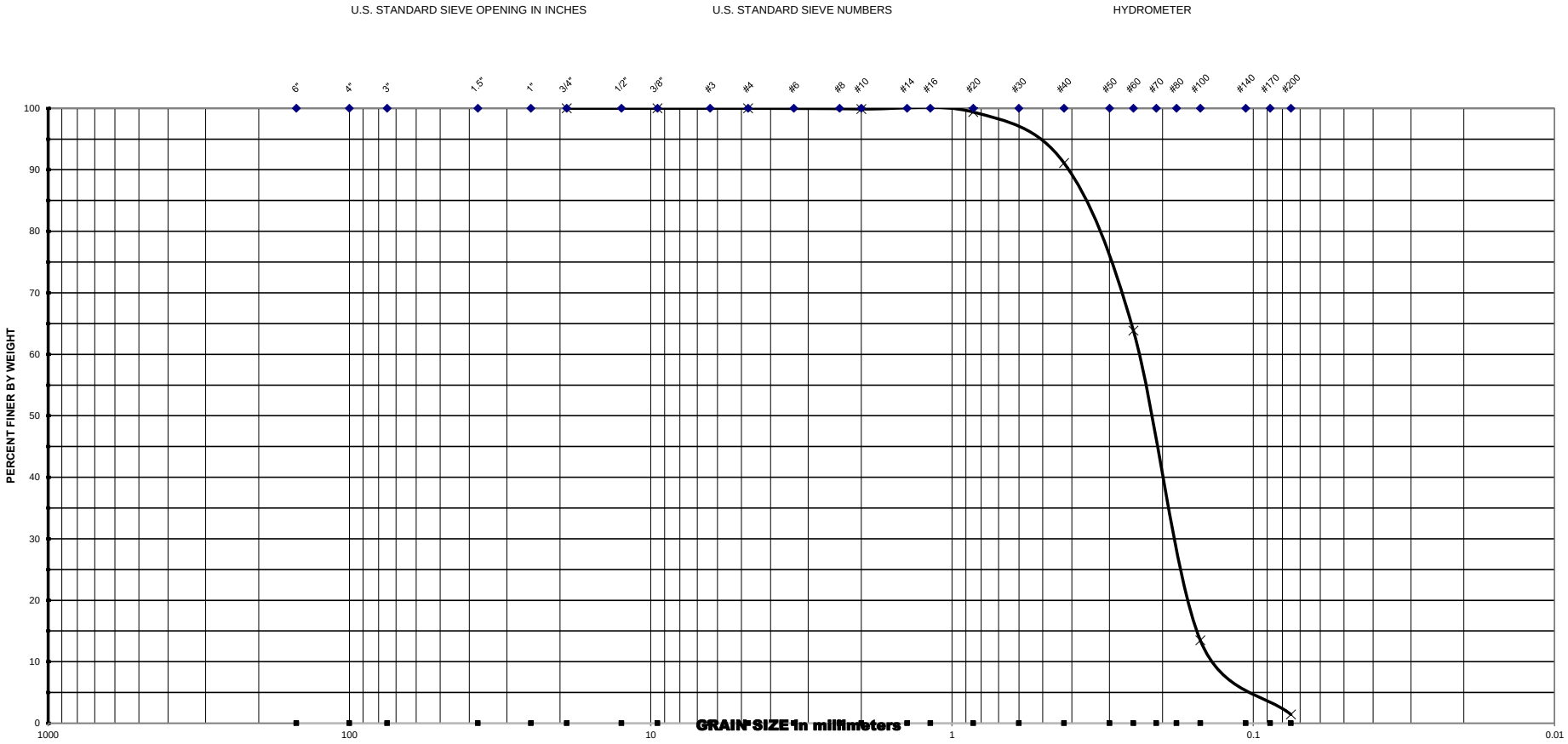

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BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-5	8.0 - 10.0	A-3	24.1	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	100.0
3/8"	100.0
#4	100.0
#10	99.9
#20	99.4
#40	91.1
#60	63.8
#100	13.5
#200	1.4

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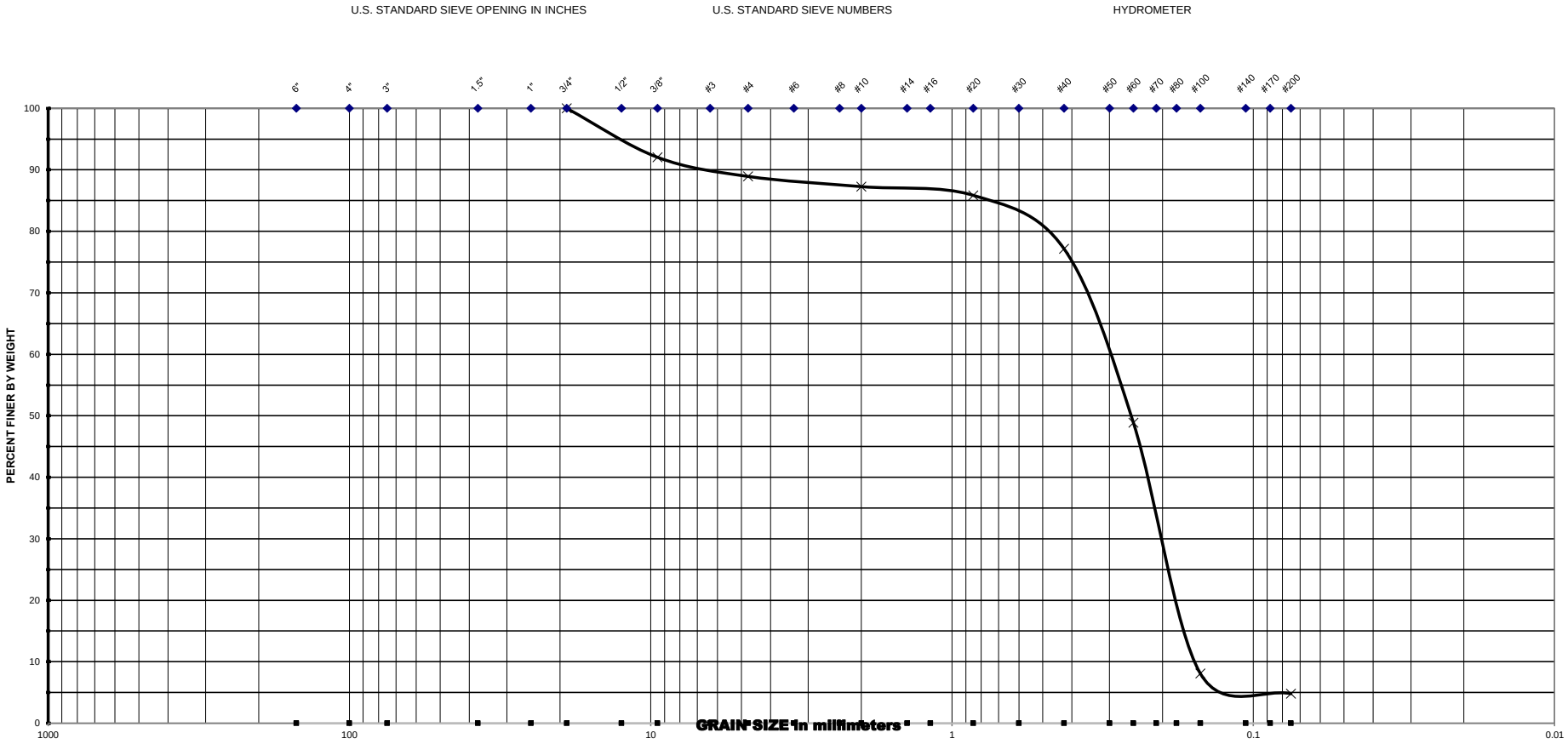

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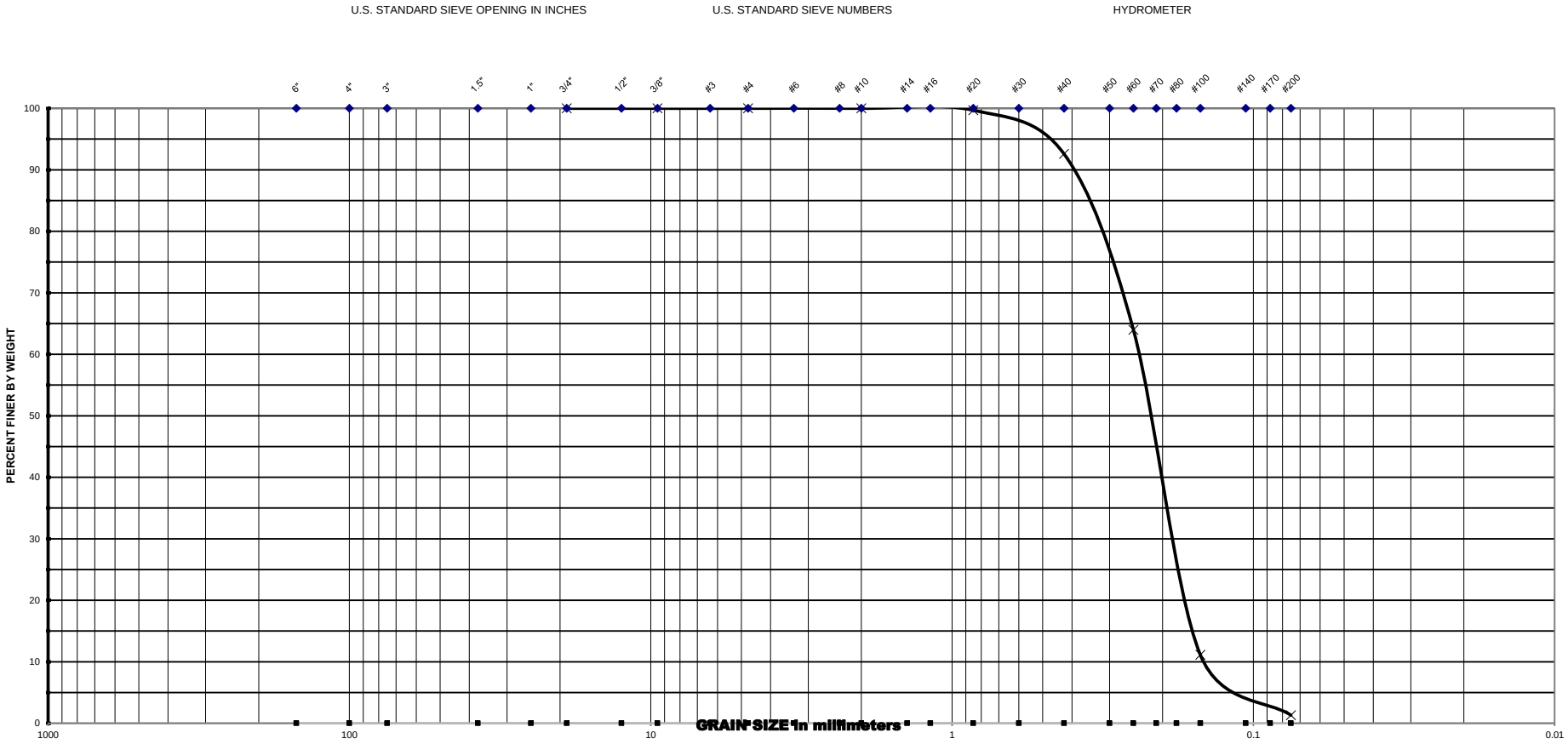
BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-6	2.0 - 4.0	A-3	4.6	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	100.0
3/8"	92.0
#4	88.9
#10	87.3
#20	85.8
#40	77.2
#60	48.9
#100	8.1
#200	4.8

GCME

Geotechnical - Consulting - Engineering - Testing



Project Name : PD&E Services for I-95 at Broward Boulevard Interchange

Project No. : 2000-01-16004 **Date :** 3/20/2017

BORING NO.	DEPTH INTERVAL [FT]	SOIL DESCRIPTION	MC	OC
BHP-6	6.0 - 8.0	A-3	20.4	

Note : MC - Moisture Content (%)
OC - Organic Content (%)

U.S SIEVE NO.	CUMM. % PASSING
3/4"	100.0
3/8"	100.0
#4	100.0
#10	100.0
#20	99.7
#40	92.6
#60	64.0
#100	11.1
#200	1.3

TABLE - 3

SUMMARY OF CORROSION TEST RESULTS

Project Name: PD&E Services for I-95 at Broward Boulevard Interchange

Boring No.	Stratum	Sample	Depth Interval	pH	Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)	Environmental Classification (Substructure)	
								Steel	Concrete
BHP-3	2	Soil	6.0 - 8.0	7.8	8540	3.9	10.4	Slightly Arrgessive	Slightly Aggressive
BHP-6	2	Soil	8.0 - 10.0	7.9	9530	4.8	6.2	Extremely Aggressive	Moderately Aggressive

Table 1.3.2-1 Criteria for Substructure Environmental Classifications

Classification	Environmental Condition	Units	Steel		Concrete	
			Water	Soil	Water	Soil
Extremely Aggressive (If any of these conditions exist)	pH		< 6.0		< 5.0	
	Cl	ppm	> 2000		> 2000	
	SO_4	ppm	N.A.		> 1500	> 2000
	Resistivity	Ohm-cm	< 1000		< 500	
Slightly Aggressive (If all of these conditions exist)	pH		> 7.0		> 6.0	
	Cl	ppm	<500		< 500	
	SO_4	ppm	N.A.		< 150	< 1000
	Resistivity	Ohm-cm	> 5000		> 3000	
Moderately Aggressive	This classification must be used at all sites not meeting requirements for either slightly aggressive or extremely aggressive environments.					

pH = acidity ($-\log_{10}H^+$; potential of Hydrogen), Cl = chloride content, SO_4 = Sulfate content.

APPENDIX – A

USDA, SCS Soil Information

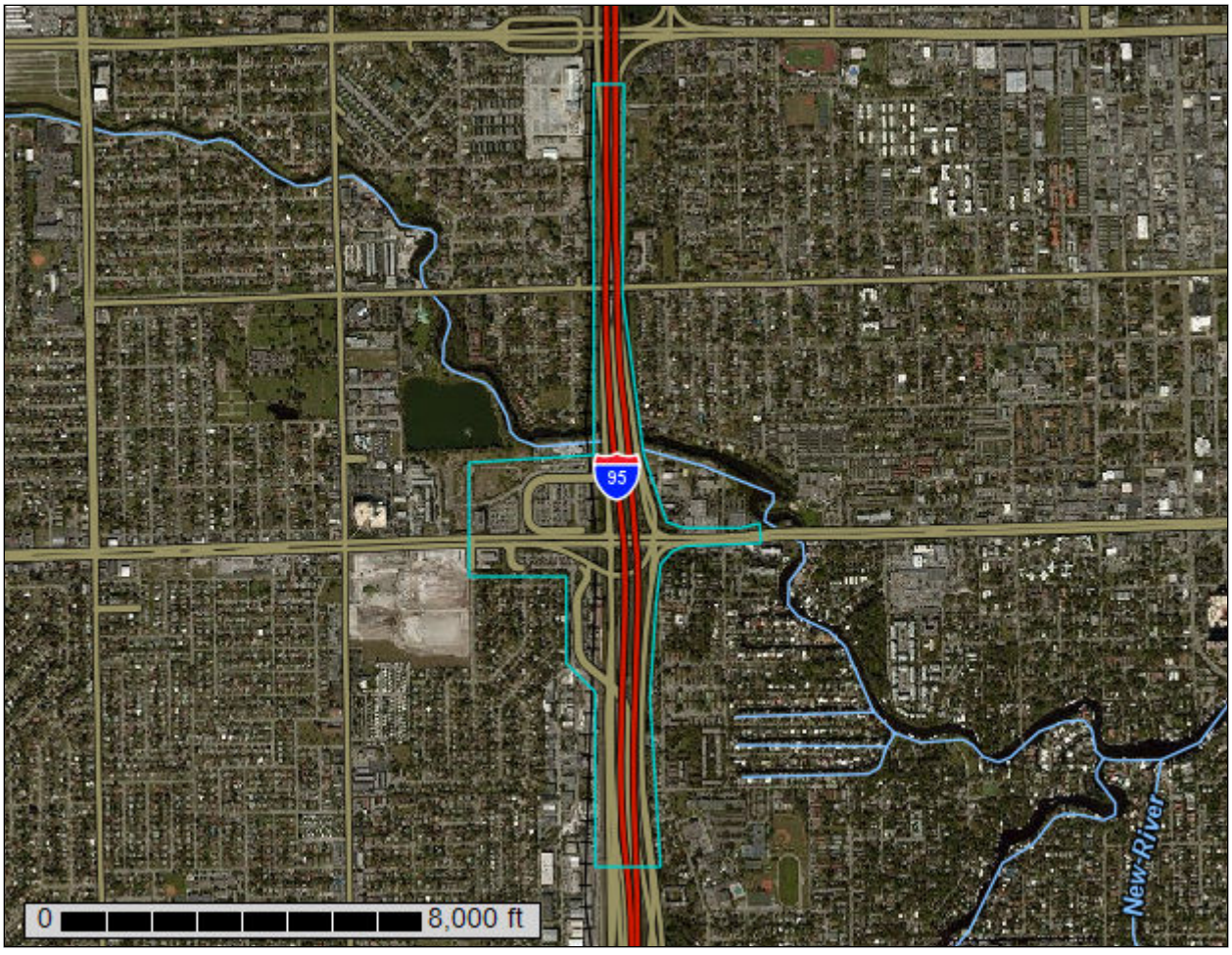
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Broward County, Florida, East Part



April 6, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

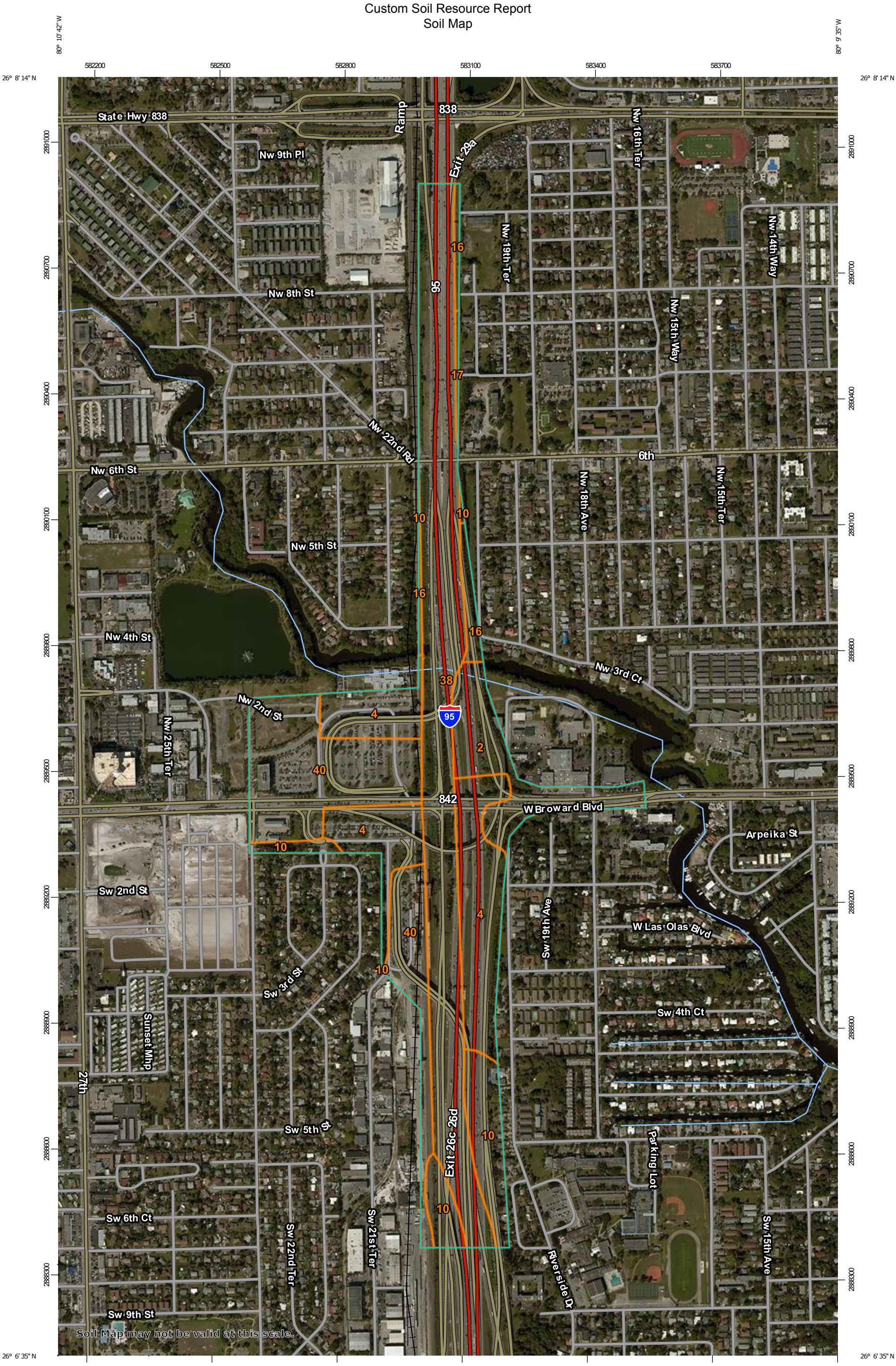
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



Map Scale: 1:8,550 if printed on B portrait (11" x 17") sheet.

N

Meters
0 100 200 400 600

Feet
0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Broward County, Florida, East Part
Survey Area Data: Version 12, Sep 14, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 17, 2014—Feb 11, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Broward County, Florida, East Part (FL606)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Arents-Urban land complex	14.0	9.4%
4	Basinger fine sand, 0 to 2 percent slopes	30.9	20.6%
10	Duette-Urban land complex	12.9	8.6%
16	Immokalee, limestone substratum-Urban land complex	3.6	2.4%
17	Immokalee-Urban land complex	0.5	0.3%
38	Udorthents, shaped	53.2	35.5%
40	Urban land	34.6	23.1%
Totals for Area of Interest		**149.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Broward County, Florida, East Part

2—Arents-Urban land complex

Map Unit Setting

National map unit symbol: 1hn8f
Mean annual precipitation: 60 to 68 inches
Mean annual air temperature: 72 to 79 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Arents and similar soils: 55 percent
Urban land: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arents

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Altered marine deposits

Typical profile

A - 0 to 4 inches: cobbly sand
C1 - 4 to 9 inches: cobbly sand
C2 - 9 to 32 inches: sand
2C - 32 to 60 inches: sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A/D
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

Minor Components

Arents, organic substratum

Percent of map unit: 3 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Udorthents, marly substratum

Percent of map unit: 2 percent
Landform: Marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

4—Basinger fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2svym
Elevation: 0 to 20 feet
Mean annual precipitation: 38 to 62 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 300 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Basinger and similar soils: 90 percent
Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Basinger

Setting

Landform: Drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

Ag - 0 to 2 inches: fine sand
Eg - 2 to 18 inches: fine sand
Bh/E - 18 to 36 inches: fine sand
Cg - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 2 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Minor Components

Eaugallie

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: South Florida Flatwoods (R155XY003FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Margate

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Tread, dip

Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G156AC145FL)
Hydric soil rating: Yes

Placid, depressional

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

10—Duette-Urban land complex

Map Unit Setting

National map unit symbol: 1hn8p
Mean annual precipitation: 60 to 68 inches
Mean annual air temperature: 72 to 79 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Duette and similar soils: 55 percent
Urban land: 40 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Duette

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 3 inches: sand
E - 3 to 66 inches: sand
Bh - 66 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

Minor Components

Basinger

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Immokalee

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Dade

Percent of map unit: 1 percent
Landform: Rises on marine terraces

Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

St. lucie

Percent of map unit: 1 percent
Landform: Flats on marine terraces, rises on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

16—Immokalee, limestone substratum-Urban land complex

Map Unit Setting

National map unit symbol: 1hn8w
Elevation: 10 to 100 feet
Mean annual precipitation: 60 to 68 inches
Mean annual air temperature: 72 to 79 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Immokalee, limestone substratum, and similar soils: 50 percent
Urban land: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Immokalee, Limestone Substratum

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 48 inches: fine sand
Bh - 48 to 58 inches: fine sand
2R - 58 to 62 inches: weathered bedrock

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: 40 to 72 inches to paralithic bedrock
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

Minor Components

Basinger

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Immokalee

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Margate

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

17—Immokalee-Urban land complex

Map Unit Setting

National map unit symbol: 1hn8x
Elevation: 10 to 100 feet
Mean annual precipitation: 60 to 68 inches
Mean annual air temperature: 72 to 79 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Immokalee and similar soils: 45 percent
Urban land: 45 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Immokalee

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 35 inches: fine sand
Bh - 35 to 54 inches: fine sand

BC - 54 to 72 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

Minor Components

Basinger

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Hallandale

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Margate

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

38—Udorthents, shaped

Map Unit Setting

National map unit symbol: 1hn9l
Mean annual precipitation: 60 to 68 inches
Mean annual air temperature: 72 to 79 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, shaped and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Shaped

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Altered marine deposits

Typical profile

C1 - 0 to 30 inches: gravelly sand
C2 - 30 to 50 inches: sand

2R - 50 to 54 inches: weathered bedrock

Properties and qualities

Slope: 0 to 45 percent
Depth to restrictive feature: 40 to 72 inches to paralithic bedrock
Natural drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: About 24 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Minor Components

Udorthents

Percent of map unit: 10 percent
Landform: Marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

40—Urban land

Map Unit Setting

National map unit symbol: 1hn9n
Mean annual precipitation: 60 to 68 inches
Mean annual air temperature: 72 to 79 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

Minor Components

Matlacha, limestone substratum

Percent of map unit: 5 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Soil Physical Properties

This folder contains a collection of tabular reports that present soil physical properties. The reports (tables) include all selected map units and components for each map unit. Soil physical properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission

rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group

index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Broward County, Florida, East Part														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
2—Arents-Urban land complex														
Arents	55	A/D	0-4	Cobbly sand	SP, SP-SM	A-1-b, A-2-4, A-3	—	0- 0- 0	75-90-95	60-73-85	40-47-60	2- 8- 12	0-7 -14	NP
			4-9	Cobbly sand	SP, SP-SM	A-1-b, A-2-4, A-3	—	0- 0- 0	75-90-95	60-73-85	40-47-60	2- 8- 12	0-7 -14	NP
			9-32	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	80-88-95	2- 7- 12	0-7 -14	NP
			32-60	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	80-88-95	2- 7- 12	0-7 -14	NP
Arents, organic substratum	3	A	0-12	Gravelly sand	SP, SP-SM	A-1-b, A-2-4, A-3	—	0- 0- 0	60-88-93	50-73-80	40-48-70	2- 7- 12	0-7 -14	NP
			12-38	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	80-88-95	2- 7- 12	0-7 -14	NP
			38-52	Muck	PT	A-8	0- 0- 0	0- 0- 0	100-100-100	100-100-100	100-100-100	100-100-100	—	—
			52-72	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	80-88-95	2- 7- 12	0-7 -14	NP
Udorthents, marly substratum	2	A	0-32	Gravelly sand	SP, SP-SM	A-1-b, A-2-4, A-3	0- 1- 2	5-10- 15	70-80-90	50-68-80	40-55-70	2- 6- 12	0-7 -14	NP
			32-60	Marly silt loam	ML	A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-97-99	85-90-95	0-18 -35	NP-3 -5

Engineering Properties–Broward County, Florida, East Part														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
4—Basinger fine sand, 0 to 2 percent slopes														
Basinger	90	A/D	0-2	Fine sand	SP-SM	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	86-95-100	5- 9- 10	0-0 -14	NP
			2-18	Fine sand	SP-SM	A-3, A-2-4	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	88-95-99	5- 9- 11	0-0 -14	NP
			18-36	Fine sand	SP-SM	A-3, A-2-4	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	89-95-100	7-10- 12	0-0 -14	NP
			36-80	Fine sand	SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	89-95-98	6- 9- 11	0-0 -14	NP
Eaugallie	4	A/D	0-5	Fine sand	SP-SM	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	84-89-95	6- 7- 14	0-0 -39	NP-0 -2
			5-28	Fine sand	SP-SM	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	86-90-98	7- 7- 16	0-0 -19	NP-0 -2
			28-42	Fine sand	SP-SM	A-2-4	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	90-95-100	10-12-19	0-21 -26	NP-1 -3
			42-50	Sandy clay loam	SC	A-6	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	75-85-97	30-41-49	21-33 -38	6-15-19
			50-65	Fine sand	SP-SM	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	92-93-100	7-10- 23	0-0 -33	NP-0 -15
Margate	3	A/D	0-8	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	95-98-100	2- 5- 8	0-7 -14	NP
			8-16	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	95-98-100	2- 5- 8	0-7 -14	NP
			16-28	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	95-98-100	2- 5- 8	0-7 -14	NP
			28-32	Gravelly fine sand	GC, GM, SC, SM	A-3	0- 0- 0	0-15- 30	60-70-80	45-53-60	40-48-55	5-15- 35	0-20 -40	NP-8 -15

Engineering Properties–Broward County, Florida, East Part														
Map unit symbol and soil name	**Pct. of map unit**	**Hydrologic group**	**Depth**	**USDA texture**	**Classification**		**Pct Fragments**		**Percentage passing sieve number—**				**Liquid limit**	**Plasticity index**
					Unified	**AASHTO**	**>10 inches**	**3-10 inches**	**4**	**10**	**40**	**200**		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
			32-36	Unweathered bedrock	—	—	—	—	—	—	—	—	—	—
Placid, depressional	3	A/D	0-3	Fine sand	SP, SP-SM, SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	90-95-100	1- 6- 15	0-7 -14	NP
			3-11	Fine sand	SP-SM, SM, SP	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	90-95-100	1- 6- 15	0-7 -14	NP
			11-80	Sand, fine sand, loamy fine sand	SM, SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	90-95-100	1-10- 20	0-7 -14	NP

Engineering Properties–Broward County, Florida, East Part														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
10—Duette-Urban land complex														
Duette	55	A	0-3	Sand	SP	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	60-80-1 00	1- 3- 4	0-7 -14	NP
			3-66	Fine sand, sand	SP	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	60-80-1 00	1- 3- 4	0-7 -14	NP
			66-80	Fine sand, sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	60-80-1 00	4- 8- 12	0-7 -14	NP
Basinger	2	A/D	0-6	Fine sand	SP	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	85-93-1 00	1- 3- 4	0-7 -14	NP
			6-23	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	85-93-1 00	2- 7- 12	0-7 -14	NP
			23-52	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	85-93-1 00	2- 7- 12	0-7 -14	NP
			52-60	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	85-93-1 00	2- 7- 12	0-7 -14	NP
Dade	1	A	0-6	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	90-95-1 00	1- 4- 6	0-7 -14	NP
			6-27	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	90-95-1 00	1- 4- 6	0-7 -14	NP
			27-35	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100 -100	100-100 -100	90-95-1 00	2- 5- 8	0-7 -14	NP

Engineering Properties–Broward County, Florida, East Part														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
			35-39	Weathered bedrock	—	—	—	—	—	—	—	—	—	—
Immokalee	1	A/D	0-6	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	2- 6- 10	0-7 -14	NP
			6-40	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	2- 6- 10	0-7 -14	NP
			40-65	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	5-13- 21	0-7 -14	NP
			65-72	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	2- 6- 10	0-7 -14	NP
St. lucie	1	A	0-3	Fine sand	SP	A-3	0- 0- 0	0- 0- 0	100-100-100	90-95-100	80-90-99	1- 3- 4	0-7 -14	NP
			3-80	Sand, fine sand	SP	A-3	0- 0- 0	0- 0- 0	100-100-100	90-95-100	80-90-99	1- 3- 4	0-7 -14	NP

Engineering Properties–Broward County, Florida, East Part														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
16—Immokalee, limestone substratum-Urban land complex														
Immokalee, limestone substratum	50	A/D	0-5	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-92-99	2- 6- 10	0-7 -14	NP
			5-48	Sand, fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-92-99	2- 6- 10	0-7 -14	NP
			48-58	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	80-90-99	5-10- 15	0-7 -14	NP
			58-62	Weathered bedrock	—	—	—	—	—	—	—	—	—	—
Basinger	3	A/D	0-6	Fine sand	SP	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-93-100	1- 3- 4	0-7 -14	NP
			6-23	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-93-100	2- 7- 12	0-7 -14	NP
			23-52	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-93-100	2- 7- 12	0-7 -14	NP
			52-60	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-93-100	2- 7- 12	0-7 -14	NP
Immokalee	3	A/D	0-6	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	2- 6- 10	0-7 -14	NP
			6-40	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	2- 6- 10	0-7 -14	NP
			40-65	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	5-13- 21	0-7 -14	NP

Engineering Properties–Broward County, Florida, East Part														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
			65-72	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	2- 6- 10	0-7 -14	NP
Margate	2	A/D	0-8	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	2- 5- 8	0-7 -14	NP
			8-16	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	2- 5- 8	0-7 -14	NP
			16-28	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	2- 5- 8	0-7 -14	NP
			28-32	Gravelly fine sand	GC, GM, SC, SM	A-3	0- 0- 0	0-15- 30	60-70-80	45-53-60	40-48-55	5-15- 35	0-20 -40	NP-8 -15
			32-36	Unweathered bedrock	—	—	—	—	—	—	—	—	—	—
Pompano	2	A/D	0-5	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	75-88-100	1- 7- 12	0-7 -14	NP
			5-80	Sand, fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	75-88-100	1- 7- 12	0-7 -14	NP

Engineering Properties–Broward County, Florida, East Part														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
17—Immokalee-Urban land complex														
Immokalee	45	B/D	0-6	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	2- 6- 10	0-7 -14	NP
			6-35	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	2- 6- 10	0-7 -14	NP
			35-54	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	5-13- 21	0-7 -14	NP
			54-72	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	70-85-100	2- 6- 10	0-7 -14	NP
Basinger	3	A/D	0-6	Fine sand	SP	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-93-100	1- 3- 4	0-7 -14	NP
			6-23	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-93-100	2- 7- 12	0-7 -14	NP
			23-52	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-93-100	2- 7- 12	0-7 -14	NP
			52-60	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-93-100	2- 7- 12	0-7 -14	NP
Hallandale	3	B/D	0-4	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	2- 4- 6	0-7 -14	NP
			4-10	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	2- 4- 6	0-7 -14	NP
			10-14	Fine sand, sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	2- 7- 12	0-7 -14	NP
			14-16	Fine sand, sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	2- 7- 12	0-7 -14	NP

Engineering Properties–Broward County, Florida, East Part														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
			16-20	Weathered bedrock	—	—	—	—	—	—	—	—	—	—
Margate	2	A/D	0-8	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	2- 5- 8	0-7 -14	NP
			8-16	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	2- 5- 8	0-7 -14	NP
			16-28	Fine sand, sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	2- 5- 8	0-7 -14	NP
			28-32	Gravelly fine sand	GC, GM, SC, SM	A-3	0- 0- 0	0-15- 30	60-70-80	45-53-60	40-48-55	5-15- 35	0-20 -40	NP-8 -15
			32-36	Unweathered bedrock	—	—	—	—	—	—	—	—	—	—
Pompano	2	A/D	0-5	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	75-88-100	1- 7- 12	0-7 -14	NP
			5-80	Sand, fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	75-88-100	1- 7- 12	0-7 -14	NP
38—Udorthents, shaped														
Udorthents, shaped	90	A	0-30	Gravelly sand	SP, SP-SM, GP-GM	A-1-b, A-2-4, A-3	0- 1- 2	10-15-40	50-65-80	40-55-70	30-45-60	2- 7- 12	0-7 -14	NP
			30-50	Sand, fine sand	SP, SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	80-88-95	2- 7- 12	0-7 -14	NP
			50-54	Weathered bedrock	—	—	—	—	—	—	—	—	—	—
Udorthents	10	A	0-57	Cobbly sand	GP-GM, SP, SP-SM	A-1-b	0- 1- 2	5-10- 15	50-60-70	40-50-60	30-40-50	2- 7- 12	0-7 -14	NP

Engineering Properties–Broward County, Florida, East Part														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
40—Urban land														
Matlacha, limestone substratum	5	B	0-23	Gravelly fine sand	SP, SP-SM	A-3	—	0- 8- 15	70-78-85	70-78-85	60-70-80	2- 6- 10	0-7 -14	NP
			23-27	Fine sand	SP, SP-SM	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-93-100	2- 6- 10	0-7 -14	NP
			27-48	Fine sand	SP-SM, SP	A-3	0- 0- 0	0- 0- 0	100-100-100	100-100-100	85-93-100	2- 6- 10	0-7 -14	NP
			48-52	Unweathered bedrock	—	—	—	—	—	—	—	—	—	—

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APPENDIX – B

Existing Soil Boring Information from Previous Projects along the Project Corridor

PD&E Services for I-95 at Broward Boulevard Interchange Improvements

Broward County, Florida

FPID No.: 435513-1-22-01

Section - 1 (Please refer to Appendix - B1)				
Existing Borings & Tests - Drainage				
Test	#	Depth	Boring Soil Profiles	Comments
Percolation Tests (BHP)	P-8			These tests were performed in 2012.
	P-9			
	P-10			
	P-11			
	P-12			
	P-13			
Double Ring Infiltration Tests	DR-7			These tests were performed in 2012.
	DR-8			
	DR-9			
	DR-10			
	DR-11			
Section - 2 (Please refer to Appendix - B1)				
Existing Borings - Roadway				
	#	Depth	Boring Soil Profiles	
Roadway	RB-1248R through RB-2096L	10	Mostly A-3 with trace A-2-4, A-4 and A-8 soils	These 29 borings were drilled in 2014.

PD&E Services for I-95 at Broward Boulevard Interchange Improvements

Broward County, Florida

FPID No.: 435513-1-22-01

Section - 3 (Please refer to Appendix - B1)				
Existing Borings - Bridge & MSE Wall Structures				
	#	Depth	Boring Soil Profiles	Comments
Bridge	B-1	100	Mostly Sand (0-70') and Limestone (70'-100')	These borings were drilled in 2014
	B-2	100		
	B-3	100		
	B-4	100		
	B-5	100		
	#	Depth	Boring Soil Profiles	Comments
MSE	WB-2060L	40	Mostly Sand (0-40') with trace limestone	These borings were drilled in 2014.
	WB-2072L	40		
	WB-2076L	40		
	WB-2076R	40		
	WB-2080L	40		
	WB-2080R	40		
	WB-2084R	40		

PD&E Services for I-95 at Broward Boulevard Interchange Improvements

Broward County, Florida

FPID No.: 435513-1-22-01

Section - 3 (Please refer to Appendix - B2)				
Existing Borings - Bridge Structures				
	#	Depth	Boring Soil Profiles	Comments
Bridge # 860600, 860601, 860602	B-1	59	Mostly Sand	These borings were drilled in 1991.
	B-2	59		
	B-3	59		
	B-4	59		
	B-34	59		
	B-35	59		
	B-54	59		
	B-55	59		
	B-11	59		
	B-12	59		
	B-13	59		
	B-14	59		
	B-7	59		
	B-8	59		
	B-9	59		
	B-10	59		
	B-28	59		
	B-29	59		
	B-30	59		
	B-31	59		
	B-51	59		
	B-49	59		
	B-50	59		
	B-57	59		
	B-58	59		

PD&E Services for I-95 at Broward Boulevard Interchange Improvements

Broward County, Florida

FPID No.: 435513-1-22-01

Section - 3 (Please refer to Appendix - B3)				
Existing Borings - Bridge Structures				
	#	Depth	Boring Soil Profiles	Comments
Bridge # 860598	B-20	59	Mostly Sand	These borings were drilled in 1991.
	B-21	59		
	B-22	59		
	B-23	59		
	B-24	59		
	B-26	59		
	B-27	59		
	B-32	59		
	B-33	59		
	B-47	59		
	B-48	59		
	B-56	59		

PD&E Services for I-95 at Broward Boulevard Interchange Improvements

Broward County, Florida

FPID No.: 435513-1-22-01

Section - 3 (Please refer to Appendix - B4)				
Existing Borings - Bridge Structures				
	#	Depth	Boring Soil Profiles	Comments
Bridge # 860260	Hole No. 1	52	Mostly Sand	These borings were drilled in 1970.
	Hole No. 2	52		
	Hole No. 3	52		
	Hole No. 4	52.5		
	Hole No. 5	52		
	Hole No. 6	52		
	Hole No. 7	54		
	Hole No. 8	54		
	Hole No. 9	55		
	Hole No. 10	52		
	Hole No. 11	52		
	Hole No. 12	53.5		
	Hole No. 13	50		
	Hole No. 14	52		
	Hole No. 15	52		
	Hole No. 16	73		
	Hole No. 17	55		

PD&E Services for I-95 at Broward Boulevard Interchange Improvements

Broward County, Florida

FPID No.: 435513-1-22-01

Section - 3 (Please refer to Appendix - B5)				
Existing Borings - Bridge Structures				
	#	Depth	Boring Soil Profiles	Comments
Bridge # 860257	Hole No. 1	45	Mostly Sand	These borings were drilled in 1970.
	Hole No. 2	50		
	Hole No. 3	52		
	Hole No. 4	50		
	Hole No. 5	45		
Section - 3 (Please refer to Appendix - B6)				
Existing Borings - Bridge Structures				
	#	Depth	Boring Soil Profiles	Comments
Bridge # 860269	Hole No. 1	45	Mostly Sand	These borings were drilled in 1970.
	Hole No. 2	52		
	Hole No. 3	45		
	Hole No. 4	45		
	Hole No. 5	42		
	Hole No. 6	42		

APPENDIX – B1

Existing Soil Boring Information from Previous Projects along the Project Corridor

I-95 Broward Blvd PD&E - Summary of Prior Geotechnical Data

Source	Available Data	Date	Samples (qty)	Locations
PD&E Study for SR 9/I-95, from SR 848/Stirling Rd. to North of SR 816/Oakland Park Blvd.	Percolation Test - Corrosion Classification	April/May-12	3	P-8, P-9, P-10, P-11, P-12, P-13
	Double Ring Infiltration Test	Apr-12	2	DR-7, DR-8, DR-9, DR-10, DR-11
SR 9/I-95 CDC, From S. of Davie Blvd. to N. of W. Commercial Blvd. – Phase 3A-1 – Roadway	Grain size analysis	Dec-14	3	RB-1248R, RB-1252R, RB-2002R, RB-2006R, RB-2010R, RB 2014R, RB-2026CL, RB-2028CR, RB-2032CR, RB-2036CR, RB-2036L, RB2036R, RB-2038R, RB-2040CL, RB-2040R, RB-2042CL, RB-2042CR, RB-2046CL, RB-2046CR, RB-2050CL, RB-2050CR, RB-2058R, RB-2062CR, RB-2066CL, RB-2084L, RB-2088CR, RB-2092CR RB-2096CR, RB-2096L
	Corrosion classification test	Sep-14	3	B-2, B-3, B-5
	Moisture and Organic content by Loss on Ignition	Nov-14	4	RB-2006R, RB-2014R, RB-2036CR, RB-2036R, RB-2038R, RB-2088CR, RB-2092CR
	Moisture and Percent passing the No.200 sieve	Nov-14	9	RB-2006R, RB-2010R, RB-2014R, RB-2036CR, RB-2036R, RB-2038R, RB-2040CL, RB-2040R, RB-2046CR, RB-2088CR, RB-2092CR, RB-2092R,
SR 9/I-95 CDC, From S. of Davie Blvd. to N. of W. Commercial Blvd. – Phase 3A-1 –Structures	Corrosion classification test		1	P-10
	SPT borings	Dec-14	12	Bridge over North Fork River: B-1, B-2, B-3, B-4
				Bridge over NW 6th street: B-5
				Retaining wall borings: WB-2060L, WB-2072L, WB-2076L, WB-2080L, WB-2076R, WB-2080R, WB-2084R,
	Moisture and Percent passing the No.200 sieve	sept/nov-14	15	B-1, B-2, B-3, B-4, WB-2060L, B-5, WB-2072L, WB-2076L, WB-2080L
	Moisture and Organic content by Loss on Ignition	sept/nov-14	4	WB-2072L, WB-2076L, WB-2080L

PD&E Study for SR 9/I-95, from SR 848/Stirling Rd. to North of SR 816/Oakland Park Blvd.

3.0 FIELD EXPLORATION AND LABORATORY TESTING

3.1 GENERAL

The primary purpose of this study was to generally define the subsurface conditions present along the area of study and to identify any subsurface issues that may be an obstacle to the development of the project.

A discussion of the subsurface conditions encountered along the alignment is provided in Section 4.2 of this report.

3.2 PERCOLATION TESTING

18 constant percolation tests were performed at selected locations. The percolation tests were performed to one depth interval in general accordance with the test procedures outlined in Appendix A. The hydraulic conductivity values ranged as follows:

0 to 15 feet: 1.1E-05 to 3.2E-04 cfs/ft2-ft. of head.

A summary of the percolation test results is presented in Appendix A.

3.3 DOUBLE RING INFILTROMETER TESTING

15 double ring infiltrometer tests were performed at selected locations. The double-ring infiltrometer tests were performed in general accordance with the test procedures outlined in Appendix A. The effective infiltration rate values ranged from 0.4 to 4.5 inches/hour for a project average of 1.9 inches/hour.

A summary of double ring infiltrometer test results is presented in Appendix A.

3.4 LABORATORY TESTING

3.4.1 Corrosivity Classification Testing

The Florida Department of Transportation Requirements Manual, Section 1.3 Environmental Classifications outlines the ranges of groundwater chemical properties considered corrosive to reinforced concrete substructure. In addition, that section environmentally classifies the superstructure based on factors located near the structure location. Based on this classification, an environment may be Slightly Aggressive, Moderately Aggressive, or Extremely Aggressive. The

testing was performed on water samples retrieved from the percolation test boreholes indicated below. The corrosion testing was performed by HRES in general accordance with Florida Method of Test Corrosion Series in Soil and Water, Designation FM 5-550. The following table summarizes the corrosivity classification test results:

Table 3.4.1 Corrosion Classification

Percolation Test No.	Resistivity ohms-cm	pH	Sulfates ppm	Chlorides ppm	Substructure Environmental Classification	
					Steel	Concrete
P-2	2,079	7.8	39	71	MA	MA
P-4	3,290	8.1	27	11	MA	**SA**
P-6	2,780	7.6	36	56	MA	MA
P-8	1,996	7.6	42	39	MA	MA
P-10	2,528	7.6	31	32	MA	MA
P-12	1,042	7.0	77	51	MA	MA
P-14	1,991	7.3	14	29	MA	MA
P-16	1,812	7.9	12	26	MA	MA
P-18	2,815	7.6	23	24	MA	MA

Based on these results, the substructures (both steel and concrete) will be in a Moderately Aggressive environment. Due to their locations, the superstructures are considered to be in a Slightly Aggressive environment.

sediments were deposited during several glacial and interglacial stages during the Pleistocene Epoch.

Within the explored depths of this study, one distinct geological formation was encountered below the structural fills, muck and sand layers. This formation is The Miami Limestone Formation.

4.2.3 Miami Limestone

The Miami Limestone can be described as a soft tan white porous to very porous fossiliferous quartz sandy fine-grained slightly oolitic limestone. The solution channels in the limestone may be up to 2 inches in diameter at some locations, are filled with quartz fine sand and uncemented calcareous materials. The limestone varies in both thickness and competency within the investigated area.

The Miami Limestone was deposited in a shallow near-shore marine carbonate bank environment. Spherical carbonate sand grains called oolites formed and were deposited in this environment. Near shore, processes transported quartz sand into the area and reworked some of the carbonate material. Encrusting organisms called bryozoans were locally abundant and formed patches on the substrate. After sea level receded, the carbonate deposit was exposed to fresh water and the cementation process was initiated. The degree of cementation, and therefore the competency of the rock, was influenced by both the abundance and the type of calcareous material in the original deposit.

4.2.4 Groundwater Conditions

The groundwater levels in the percolation tests were measured at the time of drilling. Groundwater levels in the percolation tests typically ranged from 1.6 to 12.0 feet deep.

In order to estimate the Seasonal High Water Table (SHGWT), HRES consulted the USGS National Water Information System and the water wells installed and monitored along the project's limits. HRES selected 13 wells located adjacent to I-95 (located east and west) and based on the monitoring data for a period of several years (1975 to 2011) estimated an average

groundwater elevation ranging from 1.5 to 2.0 feet, NGVD29 and a maximum (peak) groundwater elevation ranging from 2.5 to 4.5 feet, NGVD29.

In addition, HRES reviewed the groundwater data provided by Broward County Office of Environmental Services, Water Management Division – Water Table Map, Average Wet Season dated February 17, 2000 (Attached in Appendix A). Based on this map, the average wet season groundwater ranges along the project as follows:

From SR 848/Stirling Road to I-595: 1.5 to 2.0 feet, NGVD29. Recommended SHGWT: 3.0 feet, NGVD29.

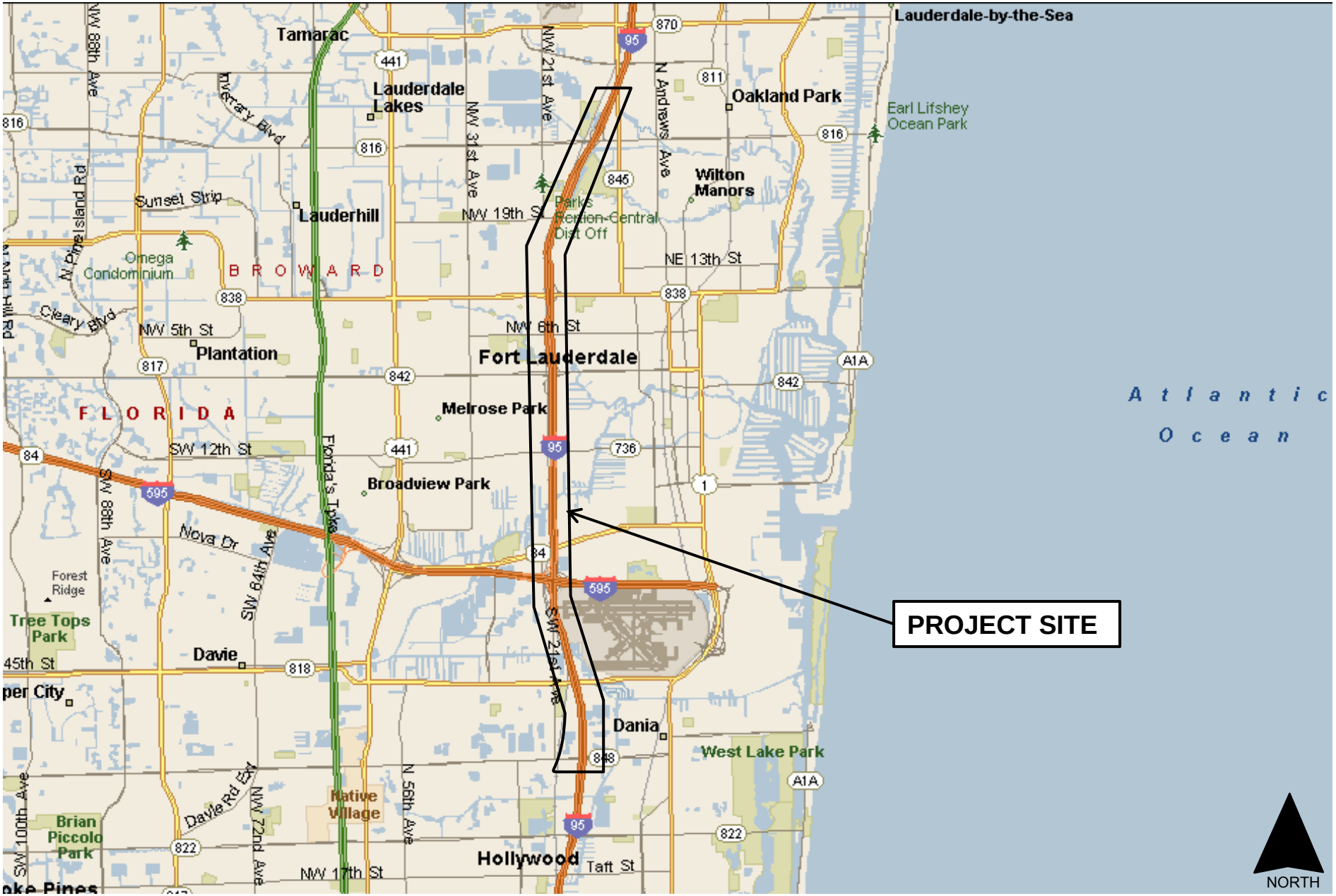
From I-595 to Davie Boulevard: 2.0 to 3.0 feet, NGVD29. Recommended SHGWT: 3.5 feet, NGVD29.

From Davie Boulevard to SR 816/Oakland Boulevard: 2.5 to 3.0 feet, NGVD29: Recommended SHGWT: 3.5 feet, NGVD29.

The Seasonal High Ground Water Table (SHGWT) was estimated by adding 6 to 12 inches over the average wet season.

Fluctuation in the observed groundwater levels should be expected due to seasonal climatic changes, construction activity, rainfall variations, surface water runoff and other site-specific factors such as water elevation variations at the nearby canals. Since groundwater level variations are anticipated, design drawing and specifications should accommodate such possibilities and construction planning should be based on the assumption that variations will occur.

APPENDIX A



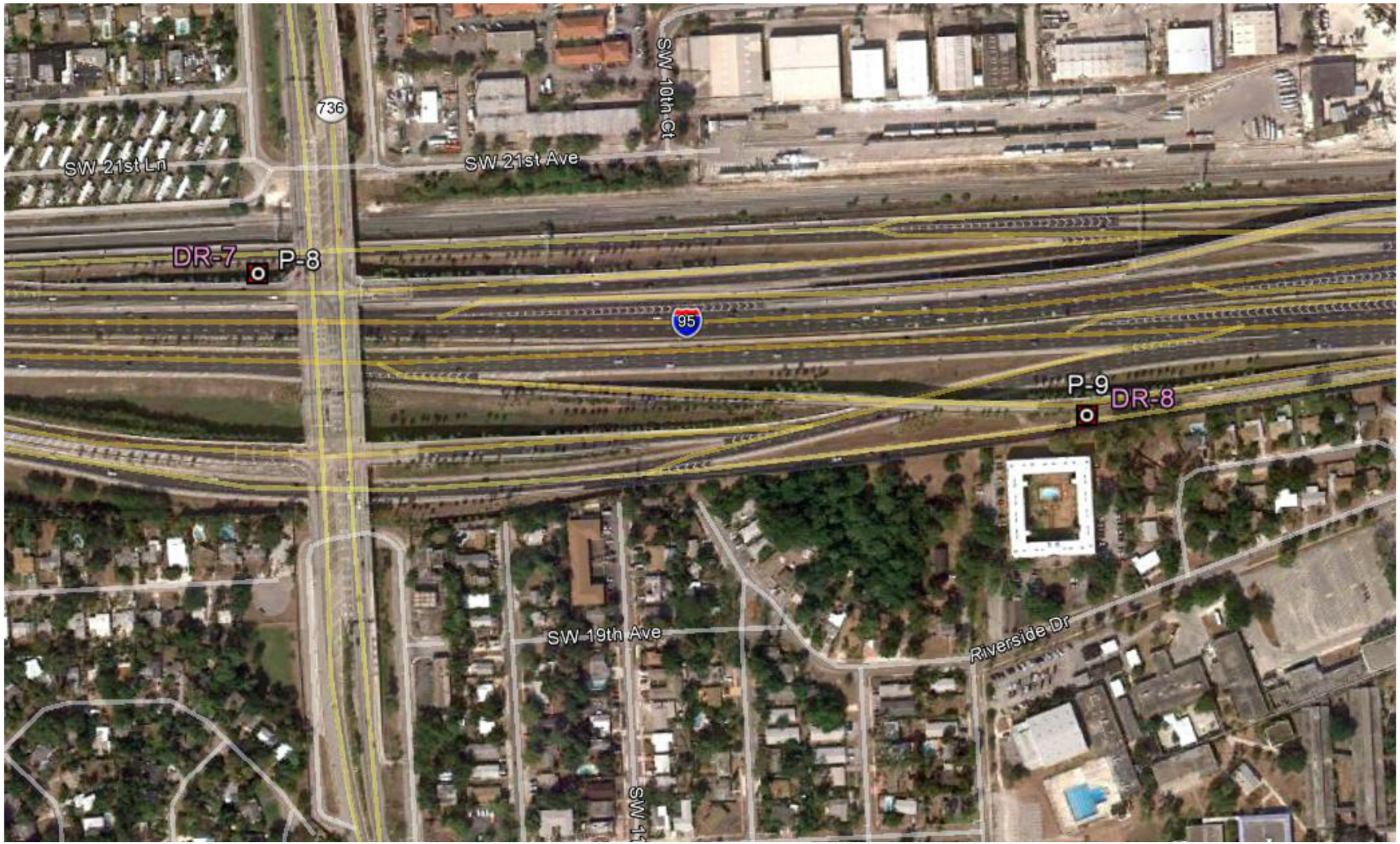
PD&E STUDY FOR SR 9/I-95, FROM SR 848/STIRLING RD. TO NORTH OF SR 816/OAKLAND PARK BLVD.
FLORIDA DEPARTMENT OF TRANSPORTATION – D4
BROWARD COUNTY, FLORIDA

HRES
HR Engineering Services, Inc.

SITE LOCATION MAP

A-1

DRAWN BY: R.A.C.	DATE: 05/23/12
PROJECT No: HR11-779R	SCALE: NTS



LEGEND:

- ◉ PERCOLATION TEST LOCATION
- ▣ DOUBLE RING TEST LOCATION

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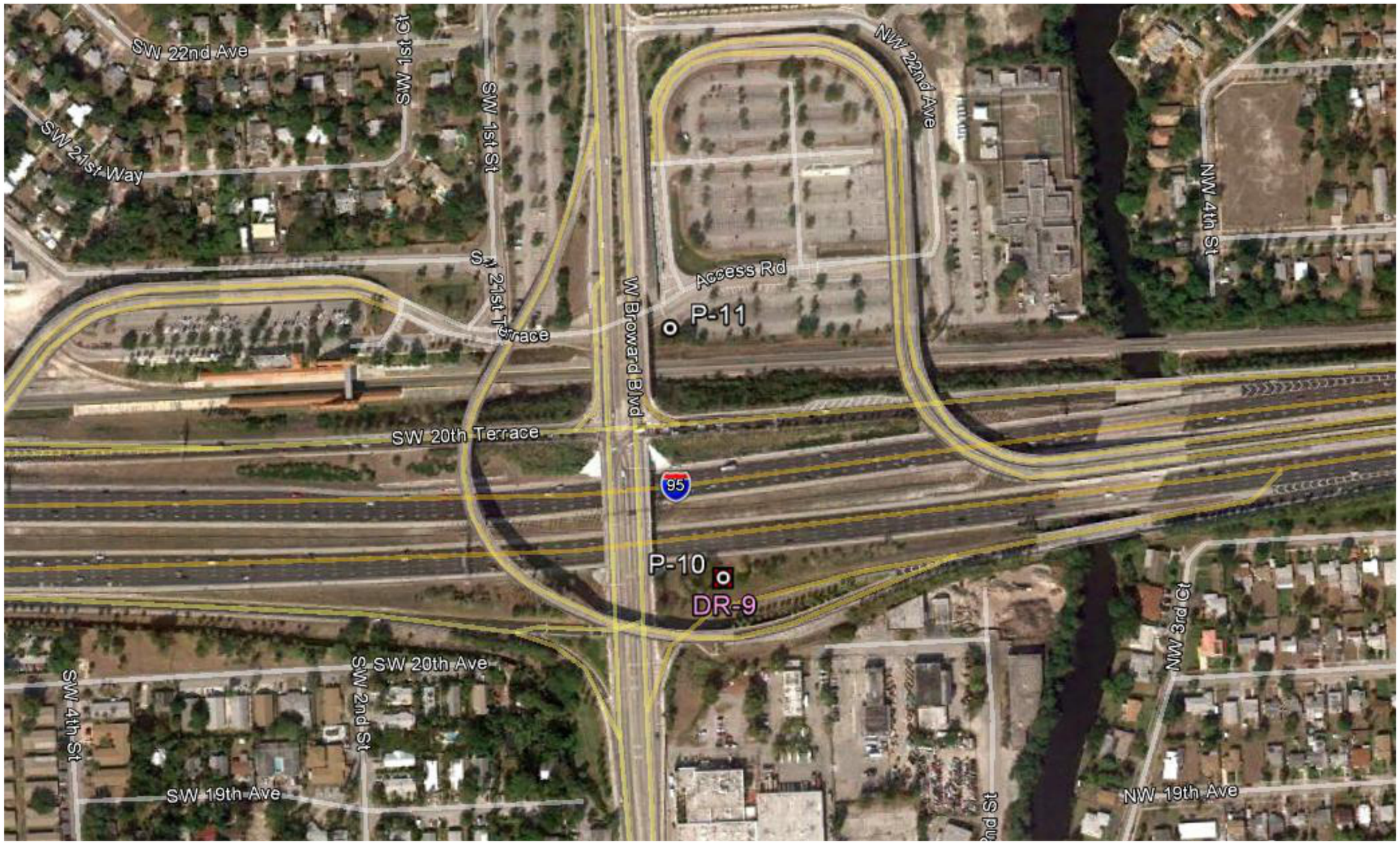
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	BROWARD	429804-1-22-01

FIELD EXPLORATION PLANS

SHEET NO.

A-6



LEGEND:

- ◉ PERCOLATION TEST LOCATION
- ▣ DOUBLE RING TEST LOCATION

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DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	BROWARD	429804-1-22-01

FIELD EXPLORATION PLANS

SHEET NO.
A-7

LEGEND:

- PERCOLATION TEST LOCATION
- DOUBLE RING TEST LOCATION

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	BROWARD	429804-1-22-01

FIELD EXPLORATION PLANS

SHEET NO.
A-8

SUMMARY OF PERCOLATION AND DOUBLE RING INFILTROMETER TEST LOCATIONS
PD&E STUDY FOR SR 9/I-95, FROM SR 848/STIRLING ROAD TO NORTH OF SR 816/OAKLAND PARK BOULEVARD
FLORIDA DEPARTMENT OF TRANSPORTATION - DISTRICT 4

FINANCIAL PROJECT ID No. 429804-1-22-01
BROWARD COUNTY, FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT No. HR11-779R
MAY 29, 2012

Test No.	PLANE COORDINATES		STATION	OFFSET, ft.
	NORTHING	EASTING		
P-1/DR-1	624244.247	931120.031	N/A	N/A
P-2	629034.356	930601.074	N/A	N/A
P-3/DR-2	629638.821	930596.214	N/A	N/A
P-4/DR-3	633236.758	929351.939	N/A	N/A
P-5/DR-4	636311.858	928767.701	N/A	N/A
P-6/DR-5	636642.192	929835.705	N/A	N/A
P-7/DR-6	639008.727	929292.100	N/A	N/A
P-8/DR-7	645185.148	928812.862	N/A	N/A
P-9/DR-8	647114.153	929197.642	N/A	N/A
P-10/DR-9	651020.863	929054.534	N/A	N/A
P-11	650912.769	928464.236	N/A	N/A
P-12/DR-10	653554.932	928559.274	N/A	N/A
P-13/DR-11	656037.225	928494.215	N/A	N/A
P-14	657277.441	928771.086	N/A	N/A
P-15/DR-12	659864.902	928496.027	N/A	N/A
P-16/DR-13	664204.412	930088.843	N/A	N/A
P-17/DR-14	667712.330	931798.224	N/A	N/A
P-18/DR-15	668618.604	932536.943	N/A	N/A

Notes:
N/A: Not Avaiilable
Plane coordinates were taken using a hand-held GPS and are approximate within 10 feet.

SUMMARY OF PERCOLATION TEST RESULTS
USUAL OPEN-HOLE - FDOT METHOD
PD&E STUDY FOR SR 9/I-95, FROM SR 848/STIRLING RD. TO N. OF SR 816/OAKLAND PARK BLVD.
FLORIDA DEPARTMENT OF TRANSPORTATION - DISTRICT 4
FINANCIAL PROJECT No. 429804-1-22-01
BROWARD COUNTY, FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT NO. HR11-779R
APRIL 29, 2012

TEST No.	TEST DATE	LOCATION	DEPTH TO WATER BEFORE TEST, H ft	DEPTH TO WATER DURING TEST ft	HEAD, Du ft	HOLE DEPTH ft	HOLE DIAMETER, d inches	RATE OF FLOW, P gpm	RATE OF FLOW, P cfs	k, HYDRAULIC CONDUCTIVITY cfs/ft^2-ft. Head
P-1	03/29/12		6.7	0.0	6.7	15.0	6.0	4.4	0.00980	**8.0E-05**
P-2	04/02/12		6.5	0.0	6.5	15.0	6.0	0.6	0.00134	**1.1E-05**
P-3	03/29/12		7.5	0.0	7.5	15.0	6.0	1.9	0.00423	**3.2E-05**
P-4	04/02/12		3.0	0.0	3.0	15.0	6.0	1.6	0.00357	**5.6E-05**
P-5	04/05/12		1.6	0.0	1.6	15.0	6.0	1.0	0.00223	**6.3E-05**
P-6	04/09/12		2.8	0.0	2.8	15.0	6.0	2.1	0.00468	**8.0E-05**
P-7	04/09/12		7.1	0.0	7.1	15.0	6.0	18.2	0.04055	**3.2E-04**
P-8	04/02/12		11.2	0.0	11.2	15.0	6.0	4.5	0.01003	**6.1E-05**
P-9	04/02/12	See Attached Field	10.7	0.0	10.7	15.0	6.0	7.6	0.01693	**1.0E-04**
P-10	04/03/12	Exploration Plans	5.8	0.0	5.8	15.0	6.0	1.7	0.00379	**3.5E-05**
P-11	04/05/12		8.4	0.0	8.4	15.0	6.0	15.0	0.03342	**2.3E-04**
P-12	04/05/12		10.4	0.0	10.4	15.0	6.0	19.0	0.04234	**2.6E-04**
P-13	04/04/12		6.8	0.0	6.8	15.0	6.0	1.0	0.00223	**1.8E-05**
P-14	04/03/12		9.7	0.0	9.7	15.0	6.0	12.9	0.02874	**1.9E-04**
P-15	04/04/12		12.0	0.0	12.0	15.0	6.0	20.0	0.04456	**2.6E-04**
P-16	04/04/12		10.6	0.0	10.6	15.0	6.0	12.0	0.02674	**1.7E-04**
P-17	04/03/12		3.0	0.0	3.0	15.0	6.0	1.9	0.00423	**6.7E-05**
P-18	04/03/12		4.0	0.0	4.0	15.0	6.0	0.5	0.00111	**1.4E-05**

for 0 to 15 ft., $K_{15} = P / 3.1416 * d * Du \{ Du/2 + Ds \}$, where Ds = Hole Depth - H

SUMMARY OF DOUBLE RING INFILTRATION TEST RESULTS
PD&E STUDY FOR SR 9/I-95, FROM SR 848/STIRLING ROAD TO NORTH OF SR 816/OAKLAND PARK BOULEVARD
FLORIDA DEPARTMENT OF TRANSPORTATION - DISTRICT 4
FINANCIAL PROJECT No. 429804-1-22-01
BROWARD COUNTY, FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT NO. HR11-779R
APRIL 29, 2012

TEST No.	TEST DATE	NORTHING	EASTING	EFFECTIVE INFILTRATION RATE in/hr.
DR-1	03/20/12	624244.247	931120.031	1.8
DR-2	03/21/12	629638.821	930596.214	0.9
DR-3	04/09/12	633236.758	929351.939	1.7
DR-4	03/21/12	636311.858	928767.701	1.0
DR-5	03/22/12	636642.192	929835.705	0.4
DR-6	03/27/12	639008.727	929292.100	1.9
DR-7	03/27/12	645185.148	928812.862	0.5
DR-8	04/10/12	647114.153	929197.642	3.4
DR-9	03/28/12	651020.863	929054.534	1.6
DR-10	04/10/12	653554.932	928559.274	1.6
DR-11	03/28/12	656037.225	928494.215	1.7
DR-12	03/29/12	659864.902	928496.027	2.0
DR-13	04/11/12	664204.412	930088.843	1.4
DR-14	03/29/12	667712.330	931798.224	4.5
DR-15	04/11/12	668618.604	932536.943	3.9

SR 9/I-95 CDC, From S. of Davie Blvd. to N. of W. Commercial Blvd. – Phase 3A-1 – Roadway

1.0 INTRODUCTION

The purpose of this geotechnical exploration was to obtain information concerning the site and subsurface conditions along the proposed roadway improvements. This report discusses our exploratory and testing procedures, presents our findings and includes the following items:

Field exploration Performed by GCME, Inc.

This report present the field test data performed by GCME, Inc. (GCME) for FDOT District 4, Project SR 9/I-95, from North of Oakland Park Boulevard to South of Glades Road. Broward and Palm Beach Counties, Florida; report dated October 26, 2012. The field exploration presented in this report includes:

- A total of 20 test borings, to depths ranging from 5 to 20 feet. The test borings were performed to help characterize the subsurface conditions along the proposed roadway improvements. The test borings subsurface information is presented in the Soil Profiles in Appendix A.

- A total of 8 test borings, each to a depth of 85 feet. The test borings were performed to help characterize the subsurface conditions at the proposed bridges widening along the roadway improvements. The test borings subsurface information is presented in the Report of a Geotechnical Exploration – Structures, a separate report.

Field exploration Performed by HRES, Inc.

This report present the field test data performed by HRES, Inc. for FDOT District 4, Project SR 9/I-95 CDC for Broward County; report dated October 1, 2013. The field exploration presented in this report includes:

- A total of 11 constant head percolation tests, each to one depth interval, from 0 to 15 feet. The percolation test results are presented in appendix A.

Additional Field Services Performed by HRES, Inc.

- Performed a total of 76 roadway borings, to depths ranging from 10 to 15 feet. The roadway borings were performed to help characterize the subsurface conditions along the proposed roadway improvements. The test borings subsurface information is presented in the Soil Profiles in Appendix A.

- Performed a total of 6 constant head percolation tests, each to one depth interval, from 0 to 15 feet. The percolation test results are presented in Appendix A.

- Obtained soil samples from the bottom of the North Fork New River (CB-1 and CB-2) and C-13 Canal (CB-3 and CB-4). The soil samples were tested to obtain the D_{50} to be used in the scour evaluation.

- In addition to the above listed field tests, a total of 63 test borings, to depths ranging from 40 to 100 feet were performed to help characterize the subsurface conditions at the proposed bridges widening, retaining walls and gantry structures along the roadway improvements. The test borings subsurface information is presented in the Report of a Geotechnical Exploration – Structures, a separate report.

Evaluation

- Soil Profiles.
- Broward County Soil Survey Map.

Laboratory Testing

- The results of laboratory tests performed on selected soil samples obtained from the test boring and percolation tests.
- Corrosion classification testing on selected water and soil samples.
- A brief description of our laboratory testing procedures.

3.3 LABORATORY TESTING

3.3.1 Soil Testing

In order to aid in classifying and estimate engineering characteristics of the subsurface materials encountered, laboratory classification tests were performed on representative soil samples obtained from the test borings and percolation tests. The laboratory testing program included the following:

- 62 Grain size distribution analyses
- 41 Fines content analyses
- 47 Organic content tests

In addition, a total of 105 moisture content tests were performed in conjunction with the classification tests. The soil laboratory test results were classified following the AASHTO Classification System. The test results are presented in Appendix B.

3.3.2 Test Results for Scour Evaluation

Soil samples were taken at the bottom of the North Fork River and C-13 Canal for D_{50} determination. The soil samples were taken at two locations per canal; at each location two soils samples were taken. The test results are presented in Appendix B. The grain size test results are summarized as follows:

Table 3.3.2 Summary of Grain Size Analysis - D_{50}

Sample Location	Sample Depth Below Bottom of Canal, ft.	D_{50}, mm
CB-1	0.0-2.0	0.25
CB-1	2.0-3.0	0.22
CB-2	0.0-1.3	0.30
CB-2	1.3-2.0	0.29
CB-3	0.0-1.1	0.69
CB-3	1.1-2.0	0.29
CB-4	0.0-1.8	0.28
CB-4	1.8-3.0	0.27

3.3.3 Corrosivity Classification Testing

Corrosivity classification testing was performed by HRES on eight water samples and one soil sample and GCME on four soil samples. This testing included pH, chlorides, sulfates contents, and resistivity results.

The Florida Department of Transportation Requirements Manual, Section 1.3 Environmental Classifications outlines the ranges of groundwater chemical properties considered corrosive to reinforced concrete substructure. In addition, that section environmentally classifies the superstructure based on factors located near the structure location. Based on this classification, an environment may be Slightly Aggressive, Moderately Aggressive, or Extremely Aggressive. The following table summarizes the laboratory test results:

Table 3.3.3 Summary of Corrosion Classification Test Results

Sample Location	Resistivity ohms-cm	pH	Sulfates ppm	Chlorides ppm	Environmental Classification (Substructure)		Performed by
					Steel	Concrete	
B-2 (water)	1,856	7.4	30	58	Moderately Aggressive	Moderately Aggressive	HRES
B-3 (water)	2,220	7.6	26	35	Moderately Aggressive	Moderately Aggressive	HRES
B-7 (water)	2,417	7.3	38	23	Moderately Aggressive	Moderately Aggressive	HRES
B-8 (water)	1,927	7.6	33	33	Moderately Aggressive	Moderately Aggressive	HRES
B-11 (water)	985	7.2	40	180	Extremely Aggressive	Moderately Aggressive	HRES
B-12 (water)	970	7.3	34	191	Extremely Aggressive	Moderately Aggressive	HRES
Northeast Sunrise Blvd. Pond (water)	1,952	7.5	30	55	Moderately Aggressive	Moderately Aggressive	HRES
C-13 Canal (water)	2,427	7.3	77	15	Moderately Aggressive	Moderately Aggressive	HRES
B-5 (soil)	3,133	7.5	77	25	Moderately Aggressive	Slightly Aggressive	HRES
B-102 (soil)	1,400	6.4	370	23	Moderately Aggressive	Moderately Aggressive	GCME

limerock/limestone lenses. Stratum 7 consists of the natural limestone. For a detailed subsurface condition at a particular borehole location, please refer to the Soil Profiles in Appendix A.

4.2.3 Groundwater Conditions

HRES reviewed the groundwater data provided by Broward County Office of Environmental Services, Water Management Division – Water Table Map, Average Wet Season dated February 17, 2000 (Attached in Appendix A). Based on this map, the average wet season groundwater along the project is at 1.5 feet, NAVD88: A Seasonal High Ground Water Table (SHGWT) of 2.5 feet NAVD88 may be used for design. The Seasonal High Ground Water Table (SHGWT) was estimated by adding 12 inches over the average wet season. Fluctuation in the groundwater levels should be expected due to seasonal climatic changes, construction activity, rainfall variations, surface water runoff and other site-specific factors such as water elevation variations at the canals. Since groundwater level variations are anticipated, design drawing and specifications should accommodate such possibilities and construction planning should be based on the assumption that variations will occur.

APPENDIX A

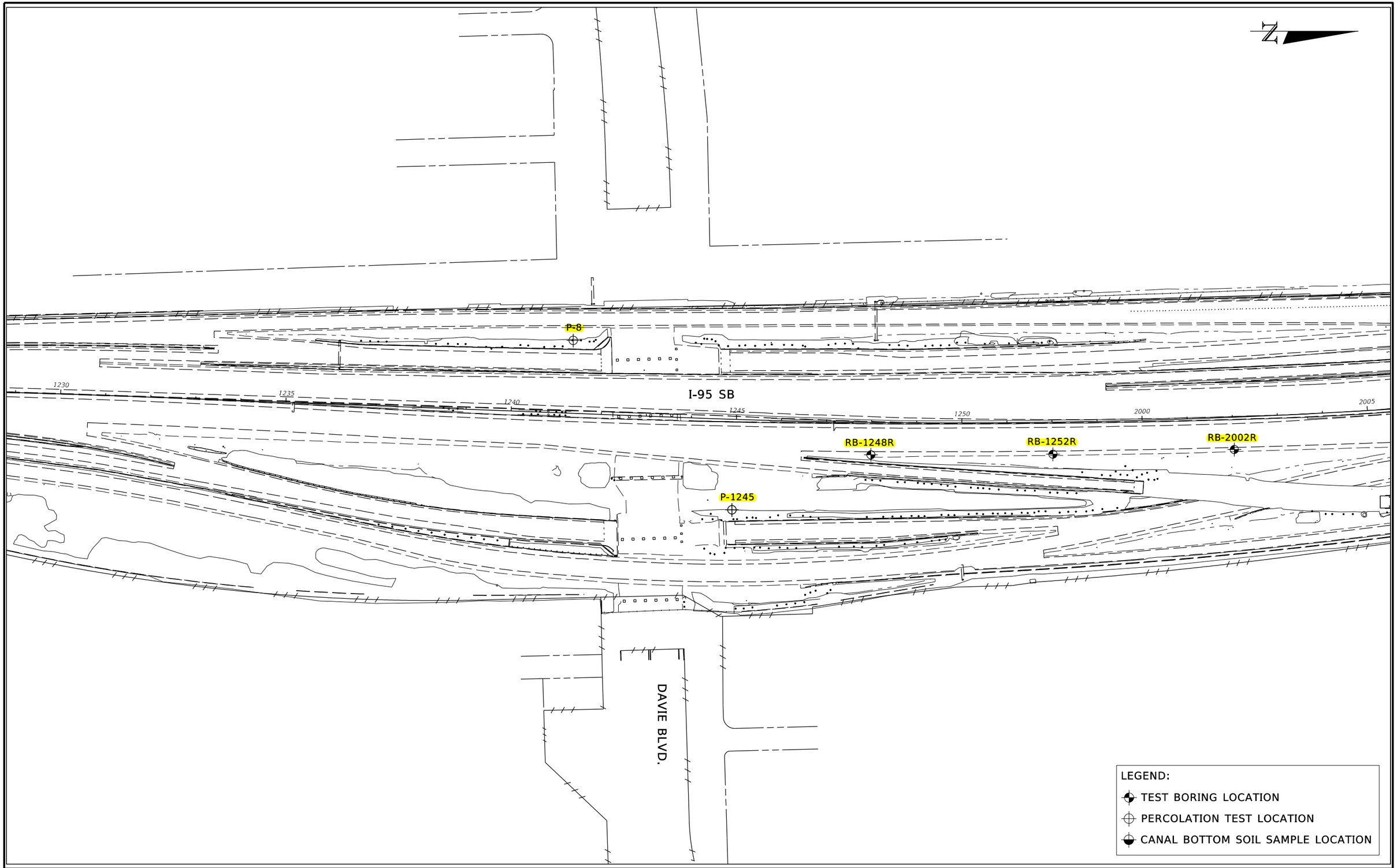
I-95 CDC, FROM SOUTH OF DAVIE BLVD. TO NORTH OF W. COMMERCIAL BLVD. – PHASE 3A-1
FLORIDA DEPARTMENT OF TRANSPORTATION–D4
BROWARD COUNTY, FLORIDA

HRES
HR Engineering Services, Inc.

SITE LOCATION MAP

A-1

DRAWN BY: R.A.C.	DATE: 12/03/14
PROJECT No: HR12-891R	SCALE: NTS



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ME 12-14	RAC 12-14	RAC 12-14	HRR 12-14

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

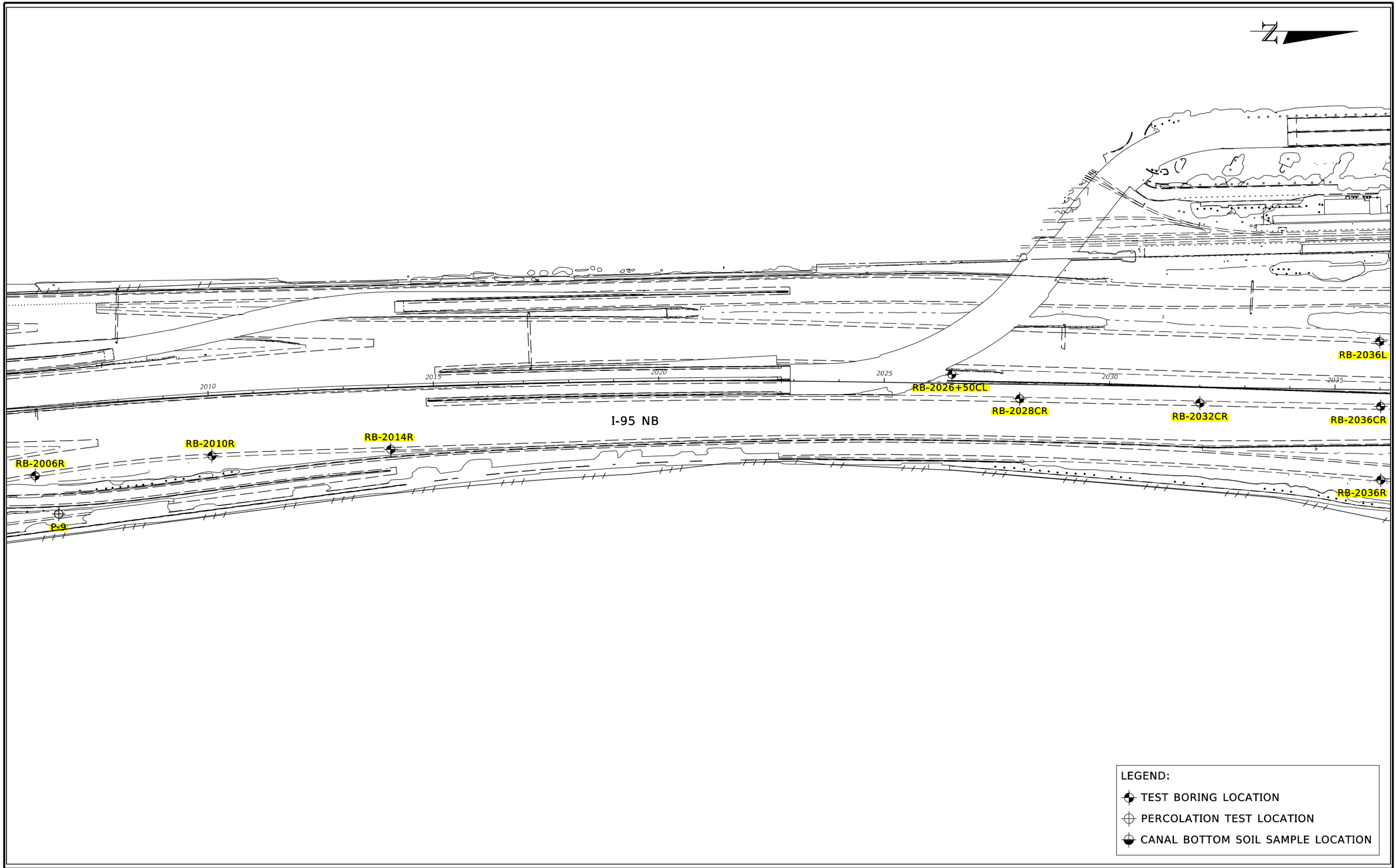
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SHEET TITLE: FIELD EXPLORATION PLANS **A-2**

REF. DWG. NO.

PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

SHEET NO.



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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

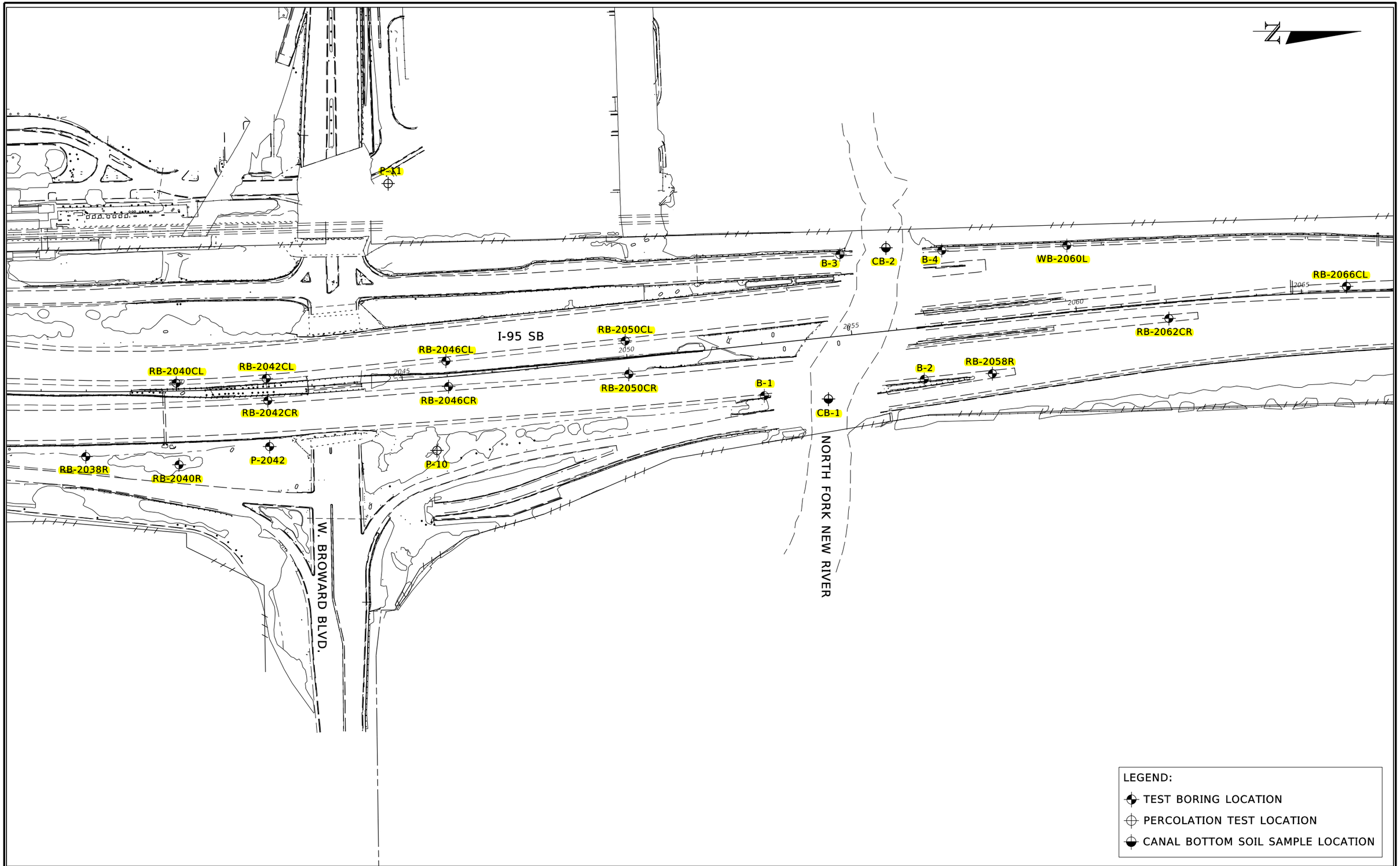
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SHEET TITLE: FIELD EXPLORATION PLANS **A-3**

PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

REF. DWG. NO.

SHEET NO.



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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DRAWN BY: ME 12-14	
CHECKED BY: RAC 12-14	
DESIGNED BY: RAC 12-14	
CHECKED BY: HRR 12-14	

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

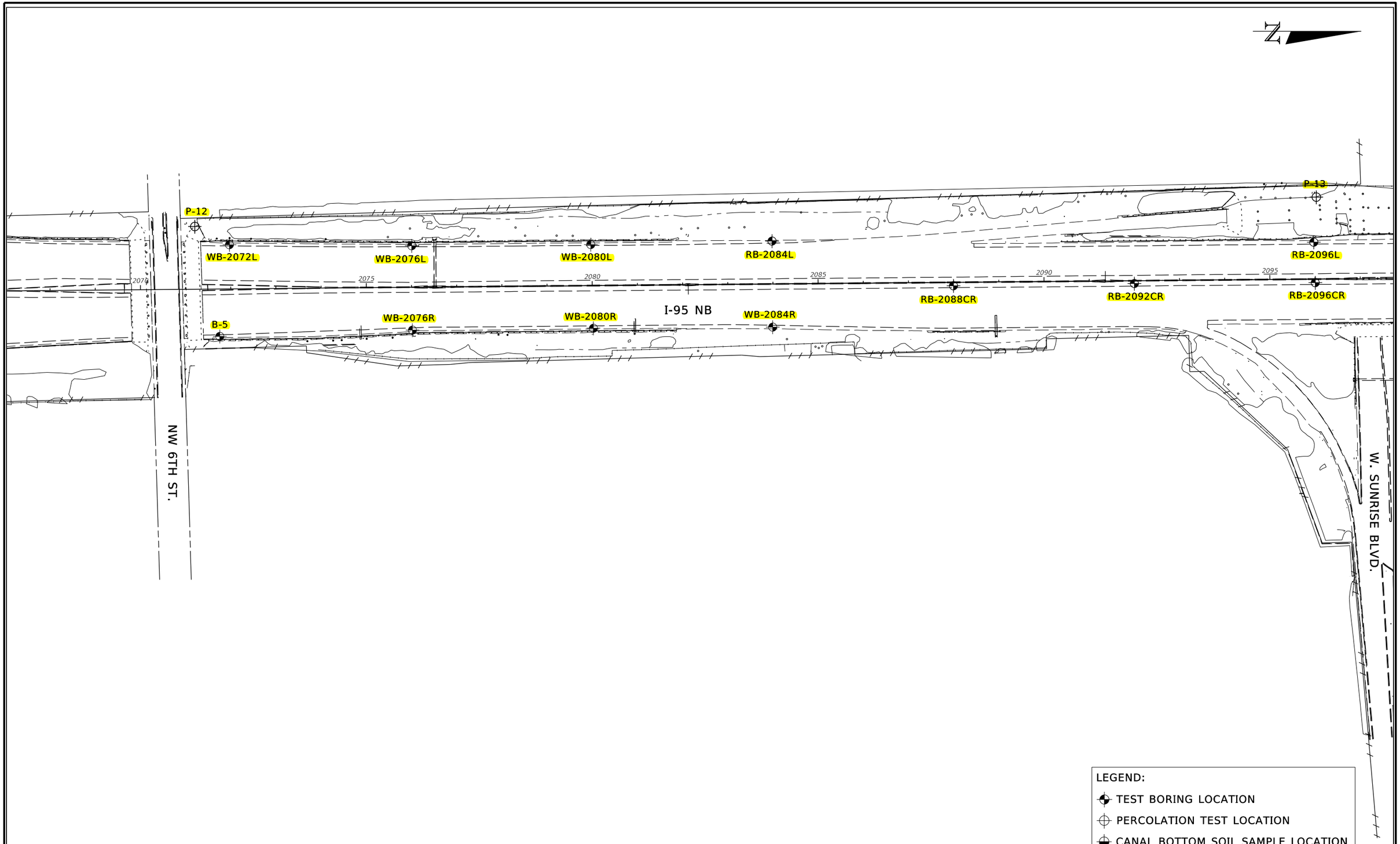
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SHEET TITLE: FIELD EXPLORATION PLANS **A-4**

REF. DWG. NO.:

PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

SHEET NO.:



REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HR ENGINEERING SERVICES, INC.
Hernando R. Ramos
P.E. License No. 42045
7815 NW 72nd Avenue Medley, Florida 33166
Phone: (305) 888-8880 - Fax: (305) 888-8770
Certificate of Authorization No. 7991

DRAWN BY:	CHECKED BY:	DESIGNED BY:	CHECKED BY:
ME 12-14	RAC 12-14	RAC 12-14	HRR 12-14

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SHEET TITLE: FIELD EXPLORATION PLANS **A-5**

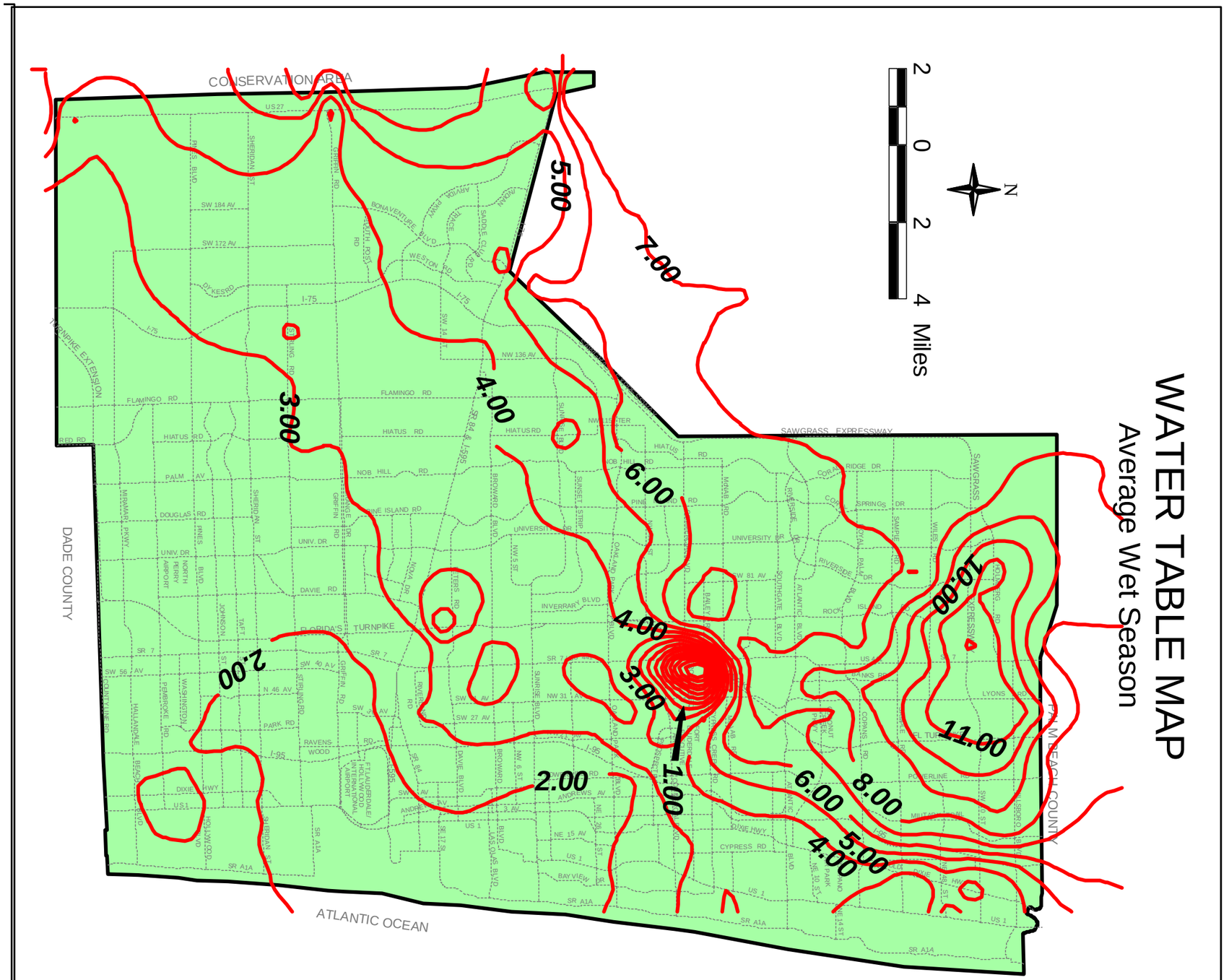
REF. DWG. NO.

PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

SHEET NO.

WATER TABLE MAP

Average Wet Season



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SHEET TITLE: BROWARD COUNTY WATER TABLE MAP
AVERAGE WET SEASON — **A-14**

REF. DWG. NO.

PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

SHEET NO.

SUMMARY OF TEST BORING AND PERCOLATIONS TEST LOCATIONS
SR 9/I-95 CDC, FROM SOUTH OF DAVIE BLVD.
TO NORTH OF WEST COMMERCIAL BLVD. – PHASE 3A-1
FLORIDA DEPARTMENT OF TRANSPORTATION, DISTRICT 4
FINANCIAL PROJECT ID No. 433108-4-52-01
BROWARD COUNTY, FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT No. HR12-891R
DECEMBER 3, 2014

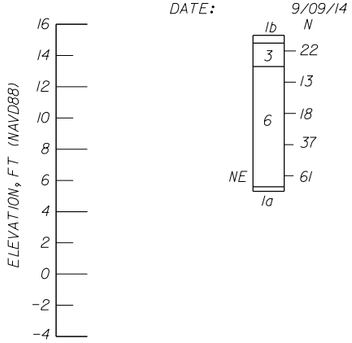
TEST No.	PLANE COORDINATES		STATION	OFFSET, ft
	NORTHING	EASTING		
P-8	645185.148	928812.862	1241+25	370.0 L
P-1245	645537.960	929188.353	1245+00	210.0 R
RB-1248R	645845.429	929066.601	1248+00	75.0 R
RB-1252R	646249.269	929065.334	1252+00	80.0 R
RB-2002R	646651.596	929054.888	2002+00	70.0 R
RB-2006R	647061.997	929113.306	2006+00	150.0 R
P-9	647114.153	929197.642	2006+35	115.0 R
RB-2010R	647453.929	929068.796	2010+00	135.0 R
RB-2014R	647850.418	929054.777	2014+00	140.0 R
RB-2026CL	649095.068	928888.323	2026+50	35.0 L
RB-2028CR	649245.540	928942.493	2028+00	25.0 R
RB-2032CR	649645.085	928951.754	2032+00	30.0 R
RB-2036L	650044.064	928815.320	2036+00	110.0 L
RB-2036CR	650046.074	928959.366	2036+00	25.0 R
RB-2036R	650046.389	929122.455	2036+00	205.0 R
RB-2038R	650243.788	929068.361	2038+00	145.0 R
RB-2040CL	650443.764	928905.634	2040+00	5.0 L
RB-2040R	650450.008	929086.404	2040+00	140.0 R
RB-2042CL	650642.897	928895.502	2042+00	20.0 L
RB-2042CR	650646.481	928944.373	2042+00	20.0 R
P-2042	650650.402	929046.073	2042+00	130.0 R
P-11	650912.769	928464.236	2045+20	550.0 L
P-10	651020.863	929054.534	2045+65	50.0 R
RB-2046CL	651040.683	928856.865	2046+00	30.0 L
RB-2046CR	651046.495	928913.269	2046+00	10.0 R
RB-2050CL	651437.340	928812.330	2050+00	30.0 L
RB-2050CR	651445.443	928885.781	2050+00	25.0 R
B-1	651745.635	928933.413	2052+70	110.0 R
CB-1	651887.447	928940.710	2054+40	135.0 R

SUMMARY OF TEST BORING AND PERCOLATIONS TEST LOCATIONS
SR 9/I-95 CDC, FROM SOUTH OF DAVIE BLVD.
TO NORTH OF WEST COMMERCIAL BLVD. – PHASE 3A-1
FLORIDA DEPARTMENT OF TRANSPORTATION, DISTRICT 4
FINANCIAL PROJECT ID No. 433108-4-52-01
BROWARD COUNTY, FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT No. HR12-891R
DECEMBER 3, 2014

TEST No.	PLANE COORDINATES		STATION	OFFSET, ft
	NORTHING	EASTING		
B-3	651912.669	928621.271	2054+50	190.0 L
CB-2	652014.717	928606.182	2056+00	180.0 L
B-2	652099.452	928897.026	2056+50	110.0 R
B-4	652138.344	928611.956	2057+50	160.0 L
RB-2058R	652250.225	928884.578	2058+00	140.0 R
WB-2060L	652414.897	928601.003	2060+00	150.0 L
RB-2062CR	652640.936	928762.642	2062+00	10.0 R
RB-2066CL	653033.789	928691.554	2066+00	15.0 L
P-12	653554.932	928559.274	2071+35	100.0 L
B-5	653610.282	928802.389	2071+80	110.0 R
WB-2072L	653631.523	928599.473	2072+00	100.0 L
WB-2076L	654035.024	928601.819	2076+00	95.0 L
WB-2076R	654036.579	928788.510	2076+00	95.0 R
WB-2080L	654431.223	928599.290	2080+00	90.0 L
WB-2080R	654437.130	928784.310	2080+00	90.0 R
RB-2084L	654832.478	928591.479	2084+00	110.0 L
WB-2084R	654834.057	928781.775	2084+00	100.0 R
RB-2088CR	655234.050	928690.301	2088+00	5.0 R
RB-2092CR	655634.597	928685.447	2092+00	10.0 R
RB-2096L	656031.683	928593.994	2096+00	90.0 L
RB-2096CR	656034.799	928683.547	2096+00	10.0 R
P-13	656037.225	928494.215	2096+10	160.0 L
RB-2100L	656434.421	928590.767	2100+00	90.0 L
RB-2100CR	656434.178	928666.560	2100+00	5.0 R
RB-2104L	656832.060	928585.931	2104+00	95.0 L
RB-2104R	656835.669	928752.582	2104+00	90.0 R
GB-2108L	657221.644	928571.960	2108+00	110.0 L
GB-2108R	657224.254	928753.052	2108+00	110.0 R
P-14	657277.441	928771.086	2108+50	115.0 R

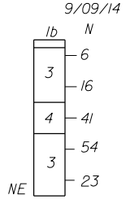
RB-1248R

NORTHING: 645845.429
EASTING: 929066.601
STATION: 1248+00
OFFSET: 75.0 R
ELEVATION: 15.3 FT
DATE: 9/09/14



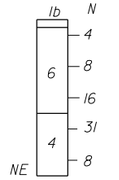
RB-1252R

NORTHING: 646249.269
EASTING: 929065.334
STATION: 1252+00
OFFSET: 80.0 R
ELEVATION: 15.0 FT
DATE: 9/09/14



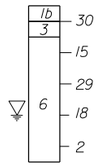
RB-2002R

NORTHING: 646651.596
EASTING: 929054.888
STATION: 2002+00
OFFSET: 70.0 R
ELEVATION: 14.7 FT
DATE: 9/09/14



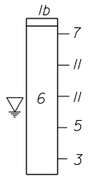
RB-2006R

NORTHING: 647061.997
EASTING: 929113.306
STATION: 2006+00
OFFSET: 150.0 R
ELEVATION: 9.5 FT
DATE: 9/09/14



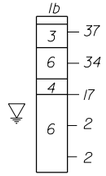
RB-2010R

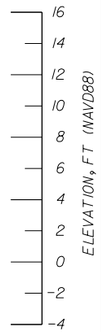
NORTHING: 647453.929
EASTING: 929068.796
STATION: 2010+00
OFFSET: 135.0 R
ELEVATION: 8.0 FT
DATE: 9/09/14



RB-2014R

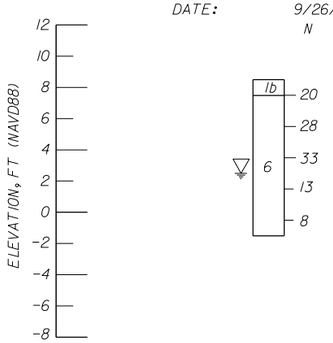
NORTHING: 647850.418
EASTING: 929054.777
STATION: 2014+00
OFFSET: 140.0 R
ELEVATION: 9.0 FT
DATE: 9/09/14





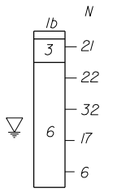
RB-2026CL

NORTHING: 649095.068
EASTING: 928888.323
STATION: 2026+50
OFFSET: 35.0 L
ELEVATION: 8.5 FT
DATE: 9/26/14



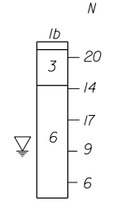
RB-2028CR

NORTHING: 649245.540
EASTING: 928942.493
STATION: 2028+00
OFFSET: 25.0 R
ELEVATION: 10.2 FT
DATE: 9/26/14



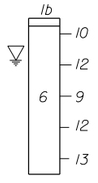
RB-2032CR

NORTHING: 649645.085
EASTING: 928951.754
STATION: 2032+00
OFFSET: 30.0 R
ELEVATION: 9.0 FT
DATE: 9/26/14



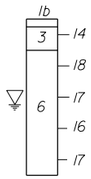
RB-2036L

NORTHING: 650044.064
EASTING: 928815.320
STATION: 2036+00
OFFSET: 110.0 L
ELEVATION: 5.2 FT
DATE: 9/17/14



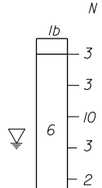
RB-2036CR

NORTHING: 650046.074
EASTING: 928959.366
STATION: 2036+00
OFFSET: 25.0 R
ELEVATION: 7.0 FT
DATE: 9/26/14



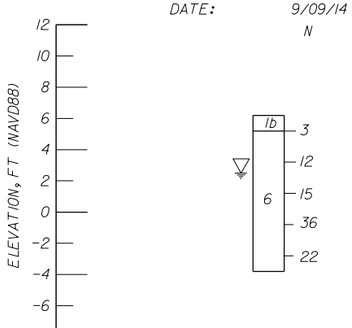
RB-2036R

NORTHING: 650046.389
EASTING: 929122.455
STATION: 2036+00
OFFSET: 205.0 R
ELEVATION: 9.2 FT
DATE: 9/09/14



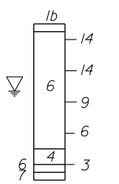
RB-2038R

NORTHING: 650243.788
EASTING: 929068.361
STATION: 2038+00
OFFSET: 145.0 R
ELEVATION: 6.2 FT
DATE: 9/09/14



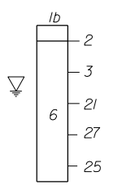
RB-2040CL

NORTHING: 650443.764
EASTING: 928905.634
STATION: 2040+00
OFFSET: 5.0 L
ELEVATION: 6.8 FT
DATE: 9/29/14



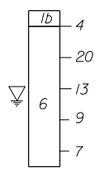
RB-2040R

NORTHING: 650450.008
EASTING: 929086.404
STATION: 2040+00
OFFSET: 140.0 R
ELEVATION: 6.7 FT
DATE: 9/09/14



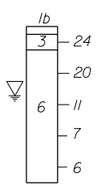
RB-2042CL

NORTHING: 650642.897
EASTING: 928895.502
STATION: 2042+00
OFFSET: 20.0 L
ELEVATION: 8.0 FT
DATE: 9/29/14



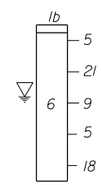
RB-2042CR

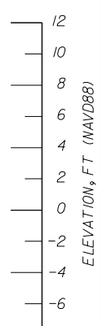
NORTHING: 650646.481
EASTING: 928944.373
STATION: 2042+00
OFFSET: 20.0 R
ELEVATION: 7.0 FT
DATE: 9/26/14



RB-2046CL

NORTHING: 651040.683
EASTING: 928856.865
STATION: 2046+00
OFFSET: 30.0 L
ELEVATION: 7.8 FT
DATE: 9/29/14





LEGEND:

- la. ASPHALT
- lb. DARK ORGANIC SILTY FINE SAND (TOPSOIL), A-8
- 2. ORGANIC SILTY FINE SAND, A-8
- 3. LIMEROCK BASE OR SILTY FINE SAND WITH SOME LIMEROCK (FILL), A-1-b
- 4. SILTY FINE SAND WITH TRACES OF LIMEROCK (FILL) OR SILTY FINE SAND (FILL), A-2-4
- 5. SANDY SILT, A-4
- 6. FINE SAND WITH TRACES OF LIMEROCK/ LIMESTONE LENSES OR ORGANIC STAINED TO SLIGHTLY ORGANIC FINE SAND, A-3
- 7. POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND

▽ GROUND WATER LEVEL AT BORING COMPLETION

NE: NOT ENCOUNTERED

N: SPT VALUE FOR 12-INCH PENETRATION (AUTOMATIC HAMMER)

THE TEST BORINGS WERE PERFORMED BY HRES USING A CME-55 TRUCK MOUNTED RIG

NOTE:

(1) STATIONS AND OFFSETS ARE REFERENCED TO SR 9 CONSTRUCTION BASELINE

VERTICAL SCALE: 0 2 10
HORIZONTAL SCALE: N.T.S.

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

HR ENGINEERING SERVICES, INC.
Hernando R. Ramos
P.E. License No. 42045
7815 NW 72nd Avenue Medley, Florida 33166
Phone: (305) 888-8880 - Fax: (305) 888-8770
Certificate of Authorization No. 7991

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

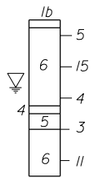
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SOIL PROFILES

SHEET NO. A-22

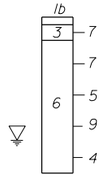
RB-2046CR

NORTHING: 651046.495
EASTING: 928913.269
STATION: 2046+00
OFFSET: 20.0 R
ELEVATION: 7.5 FT
DATE: 9/26/14



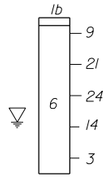
RB-2050CL

NORTHING: 651437.340
EASTING: 928812.330
STATION: 2050+00
OFFSET: 30.0 L
ELEVATION: 9.6 FT
DATE: 9/29/14



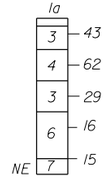
RB-2050CR

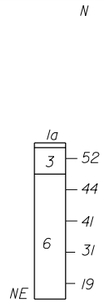
NORTHING: 651445.443
EASTING: 928885.781
STATION: 2050+00
OFFSET: 25.0 R
ELEVATION: 9.0 FT
DATE: 9/26/14



RB-2058R

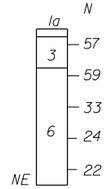
NORTHING: 652250.225
EASTING: 928884.578
STATION: 2058+00
OFFSET: 140.0 R
ELEVATION: 12.8 FT
DATE: 9/10/14





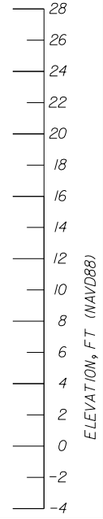
RB-2062CR

NORTHING: 652640.936
EASTING: 928762.642
STATION: 2062+00
OFFSET: 10.0 R
ELEVATION: 20.5 FT
DATE: 9/26/14



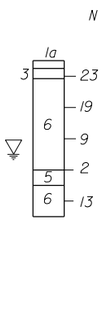
RB-2066CL

NORTHING: 653033.789
EASTING: 928691.554
STATION: 2066+00
OFFSET: 15.0 L
ELEVATION: 27.8 FT
DATE: 9/29/14



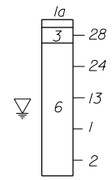
RB-2084L

NORTHING: 654832.478
EASTING: 928591.479
STATION: 2084+00
OFFSET: 105.0 L
ELEVATION: 8.5 FT
DATE: 9/24/14



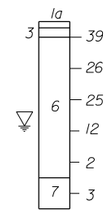
RB-2088CR

NORTHING: 655234.050
EASTING: 928690.301
STATION: 2088+00
OFFSET: 5.0 R
ELEVATION: 9.0 FT
DATE: 9/26/14



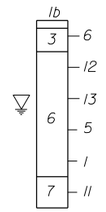
RB-2092CR

NORTHING: 655634.597
EASTING: 928685.447
STATION: 2092+00
OFFSET: 10.0 R
ELEVATION: 9.2 FT
DATE: 9/26/14



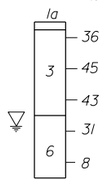
RB-2096L

NORTHING: 656031.683
EASTING: 928593.994
STATION: 2096+00
OFFSET: 90.0 L
ELEVATION: 8.0 FT
DATE: 9/24/14



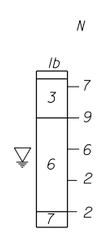
RB-2096CR

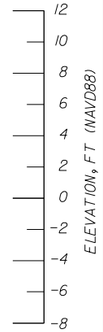
NORTHING: 656034.799
EASTING: 928683.547
STATION: 2096+00
OFFSET: 10.0 R
ELEVATION: 9.2 FT
DATE: 9/26/14



RB-2100L

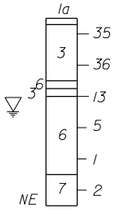
NORTHING: 656434.421
EASTING: 928590.767
STATION: 2100+00
OFFSET: 90.0 L
ELEVATION: 7.8 FT
DATE: 9/24/14





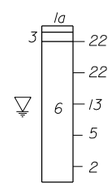
RB-2100CR

NORTHING: 656434.178
EASTING: 928666.560
STATION: 2100+00
OFFSET: 5.0 R
ELEVATION: 8.5 FT
DATE: 9/26/14



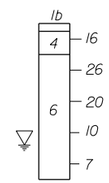
RB-2104L

NORTHING: 656832.060
EASTING: 928585.931
STATION: 2104+00
OFFSET: 95.0 L
ELEVATION: 8.0 FT
DATE: 9/24/14



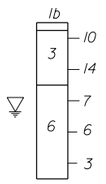
RB-2104R

NORTHING: 656835.669
EASTING: 928752.582
STATION: 2104+00
OFFSET: 90.0 R
ELEVATION: 9.0 FT
DATE: 9/03/14



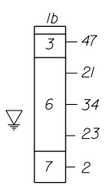
RB-2110L

NORTHING: 657428.461
EASTING: 928569.655
STATION: 2100+00
OFFSET: 100.0 L
ELEVATION: 8.2 FT
DATE: 9/24/14



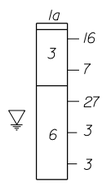
RB-2110R

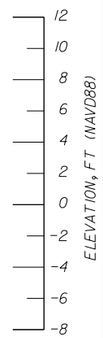
NORTHING: 657438.596
EASTING: 928733.638
STATION: 2110+00
OFFSET: 125.0 R
ELEVATION: 8.0 FT
DATE: 9/03/14



RB-2118L

NORTHING: 658222.982
EASTING: 928498.308
STATION: 2118+00
OFFSET: 110.0 L
ELEVATION: 9.0 FT
DATE: 9/24/14





LEGEND:

Ia. ASPHALT

Ib. DARK ORGANIC SILTY FINE SAND (TOPSOIL), A-8

2. ORGANIC SILTY FINE SAND, A-8

3. LIMEROCK BASE OR SILTY FINE SAND WITH SOME LIMEROCK (FILL), A-1-b

4. SILTY FINE SAND WITH TRACES OF LIMEROCK (FILL) OR SILTY FINE SAND (FILL), A-2-4

5. SANDY SILT, A-4

6. FINE SAND WITH TRACES OF LIMEROCK/ LIMESTONE LENSES OR ORGANIC STAINED TO SLIGHTLY ORGANIC FINE SAND, A-3

7. POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND

▽ GROUND WATER LEVEL AT BORING COMPLETION

NE: NOT ENCOUNTERED

N: SPT VALUE FOR 12-INCH PENETRATION (AUTOMATIC HAMMER)

THE TEST BORINGS WERE PERFORMED BY HRES USING A CME-55 TRUCK MOUNTED RIG

NOTE:

(1) STATIONS AND OFFSETS ARE REFERENCED TO SR 9 CONSTRUCTION BASELINE

VERTICAL SCALE: 0 2 10

HORIZONTAL SCALE: N.T.S.

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

HR ENGINEERING SERVICES, INC.
Hernando R. Ramos
P.E. License No. 42045
7815 NW 72nd Avenue Medley, Florida 33166
Phone: (305) 888-8880 - Fax: (305) 888-8770
Certificate of Authorization No. 7991

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SOIL PROFILES

SHEET NO.
A-23

APPENDIX B

SUMMARY OF LABORATORY TEST RESULTS
SR 9/I-95 CDC, FROM SOUTH OF DAVIE BLVD. TO NORTH OF WEST COMMERCIAL BLVD.–PHASE 3A-1
FLORIDA DEPARTMENT OF TRANSPORTATION, DISTRICT 4
FINANCIAL PROJECT ID No. 433108-1-52-01
BROWARD COUNTY, FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT No. HR12-891R
DECEMBER 3, 2014

Test Boring No.	AASHTO Class.	Stratum No.	Sample Depth (ft)	Grain Size Distribution - Percent Passing								Organic Loss of Ignition, %	Moisture Content %	Material in Sample, %		
				3/4"	3/8"	No. 4	No. 10	No. 40	No. 60	No. 100	No. 200			Gravel	Sand	Fines
RB-1248R	A-1-b	3	0.5-2.0	95	83	69	55	39	33	23	17	-	6	31	52	17
RB-1248R	A-3	6	8.0-9.7	100	97	94	93	85	67	22	8	-	13	6	86	8
RB-1252R	A-1-b	3	2.0-4.0	78	68	59	54	47	41	20	8	-	3	41	51	8
RB-1252R	A-2-4	4	4.0-6.0	100	96	91	86	77	64	31	17	-	7	9	74	17
RB-1252R	A-1-b	3	7.5-8.0	100	76	64	48	33	28	21	15	-	4	36	49	15
RB-1252R	A-1-b	3	8.0-10.0	90	78	69	59	46	35	21	13	-	5	31	56	13
RB-2002R	A-3	6	0.5-2.0	87	86	83	80	71	48	12	4	-	4	17	79	4
RB-2002R	A-3	6	2.0-4.0	100	98	93	89	77	52	12	5	-	5	7	88	5
RB-2002R	A-3	6	4.0-6.0	100	99	97	94	84	58	17	8	-	7	3	89	8
RB-2002R	A-2-4	4	6.0-8.0	99	88	80	74	61	44	20	12	-	8	20	68	12
RB-2006R	A-1-b	3	1.0-2.0	100	57	55	49	36	31	22	15	-	1	45	40	15
RB-2006R	A-3	6	2.0-4.0	-	-	-	-	-	-	-	4	-	11	-	-	4
RB-2006R	A-3	6	8.0-10.0	-	-	-	-	-	-	-	3	2	23	-	-	3
RB-2010R	A-3	6	2.0-3.2	-	-	-	-	-	-	-	3	-	16	-	-	3
RB-2010R	A-3	6	3.2-4.0	-	-	-	-	-	-	-	9	-	21	-	-	9
RB-2014R	A-1-b	3	0.5-2.0	98	94	83	69	50	43	31	23	-	3	17	60	23
RB-2014R	A-3	6	2.0-3.0	100	85	79	75	63	44	19	10	-	5	21	69	10
RB-2014R	A-2-4	4	4.0-5.0	88	74	67	63	52	35	16	11	-	5	33	56	11

SUMMARY OF LABORATORY TEST RESULTS
SR 9/I-95 CDC, FROM SOUTH OF DAVIE BLVD. TO NORTH OF WEST COMMERCIAL BLVD.–PHASE 3A-1
FLORIDA DEPARTMENT OF TRANSPORTATION, DISTRICT 4
FINANCIAL PROJECT ID No. 433108-1-52-01
BROWARD COUNTY, FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT No. HR12-891R
DECEMBER 3, 2014

Test Boring No.	AASHTO Class.	Stratum No.	Sample Depth (ft)	Grain Size Distribution - Percent Passing								Organic Loss of Ignition, %	Moisture Content %	Material in Sample, %		
				3/4"	3/8"	No. 4	No. 10	No. 40	No. 60	No. 100	No. 200			Gravel	Sand	Fines
RB-2014R	A-3	6	8.0-10.0	-	-	-	-	-	-	-	4	4	1	-	-	4
RB-2026CL	A-3	6	1.0-2.0	100	97	94	92	78	55	28	5	-	12	6	89	5
RB-2028CR	A-1-b	3	0.5-2.0	97	85	73	63	48	36	16	8	-	8	27	65	8
RB-2028CR	A-3	6	2.0-4.0	95	87	84	80	67	43	17	8	-	7	16	76	8
RB-2032CR	A-1-b	3	0.5-2.0	91	73	60	48	34	29	20	14	-	8	40	46	14
RB-2032CR	A-1-b	3	2.0-2.8	89	76	66	57	45	36	21	12	-	9	34	54	12
RB-2036CR	A-1-b	3	0.5-2.0	90	79	67	54	36	31	21	15	-	9	33	52	15
RB-2036CR	A-3	6	6.0-8.0	-	-	-	-	-	-	-	6	2	22	-	-	6
RB-2036L	A-3	6	2.0-4.0	100	100	100	100	98	82	28	4	-	26	0	96	4
RB-2036R	A-3	6	4.0-6.0	-	-	-	-	-	-	-	3	1	4	-	-	3
RB-2038R	A-3	6	1.0-2.0	-	-	-	-	-	-	-	8	2	1	-	-	8
RB-2040CL	A-3	6	0.5-2.0	92	87	79	75	59	39	17	10	-	7	21	69	10
RB-2040CL	A-3	6	2.0-4.0	93	91	90	89	73	37	13	4	-	6	10	86	4
RB-2040CL	A-2-4	4	8.0-9.0	-	-	-	-	-	-	-	15	-	26	-	-	15
RB-2040R	A-3	6	1.0-2.0	-	-	-	-	-	-	-	4	-	1	-	-	4
RB-2040R	A-3	6	2.0-3.0	-	-	-	-	-	-	-	4	-	3	-	-	4
RB-2042CL	A-3	6	2.0-4.0	100	97	95	94	84	50	18	5	-	6	5	90	5
RB-2042CR	A-1-b	3	0.5-1.5	77	70	61	53	37	26	18	13	-	6	39	48	13

SUMMARY OF LABORATORY TEST RESULTS
SR 9/I-95 CDC, FROM SOUTH OF DAVIE BLVD. TO NORTH OF WEST COMMERCIAL BLVD.–PHASE 3A-1
FLORIDA DEPARTMENT OF TRANSPORTATION, DISTRICT 4
FINANCIAL PROJECT ID No. 433108-1-52-01
BROWARD COUNTY, FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT No. HR12-891R
DECEMBER 3, 2014

Test Boring No.	AASHTO Class.	Stratum No.	Sample Depth (ft)	Grain Size Distribution - Percent Passing								Organic Loss of Ignition, %	Moisture Content %	Material in Sample, %		
				3/4"	3/8"	No. 4	No. 10	No. 40	No. 60	No. 100	No. 200			Gravel	Sand	Fines
RB-2046CL	A-3	6	4.0-6.0	100	100	99	99	96	81	37	7	-	25	1	92	7
RB-2046CR	A-2-4	4	5.5-6.0	-	-	-	-	-	-	-	29	-	37	-	-	29
RB-2046CR	A-4	5	6.0-7.0	-	-	-	-	-	-	-	57	-	48	-	-	57
RB-2050CL	A-1-b	3	0.5-1.5	95	86	73	59	44	35	22	15	-	5	27	58	15
RB-2050CR	A-3	6	0.5-2.0	94	87	78	72	60	41	17	10	-	8	22	68	10
RB-2058R	A-1-b	3	0.5-2.0	76	74	65	57	45	33	18	10	-	5	35	55	10
RB-2058R	A-2-4	4	2.0-4.0	100	96	88	79	65	53	36	23	-	3	12	65	23
RB-2058R	A-1-b	3	4.0-6.0	85	77	68	58	45	36	20	9	-	4	32	59	9
RB-2062CR	A-1-b	3	0.3-2.0	89	79	69	57	40	34	26	19	-	10	31	50	19
RB-2066CL	A-1-b	3	0.5-2.0	100	90	76	61	43	37	28	20	-	25	24	56	20
RB-2084L	A-3	6	1.5-2.0	100	99	98	97	91	72	25	6	-	9	2	92	6
RB-2088CR	A-3	6	2.0-4.0	100	95	94	93	85	60	20	6	-	4	6	88	6
RB-2088CR	A-3	6	8.0-10.0	-	-	-	-	-	-	-	5	1	31	-	-	5
RB-2092CR	A-3	6	4.0-6.0	-	-	-	-	-	-	-	8	2	8	-	-	8
RB-2092CR	A-3	6	8.0-10.0	-	-	-	-	-	-	-	6	2	18	-	-	6
RB-2096CR	A-1-b	3	0.5-2.0	-	-	-	-	-	-	-	9	2	11	-	-	9
RB-2096L	A-3	6	2.0-4.0	-	-	-	-	-	-	-	3	2	7	-	-	3
RB-2096L	A-3	6	8.0-10.0	-	-	-	-	-	-	-	3	2	21	-	-	3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-1248R	**Sample No.:**	1B
Depth:	0.5'-2.0'		
Date:	10/16/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	26.70	26.70	5	95	
3/8"	9.51	59.90	86.60	17	83	
4	4.76	67.30	153.90	31	69	AASHTO Classification:
10	2.00	64.90	218.80	45	55	
40	0.420	79.70	298.50	61	39	A-1-b
60	0.250	29.10	327.60	67	33	
100	0.149	48.50	376.10	77	23	
200	0.074	31.70	407.80	83	17	
PAN						

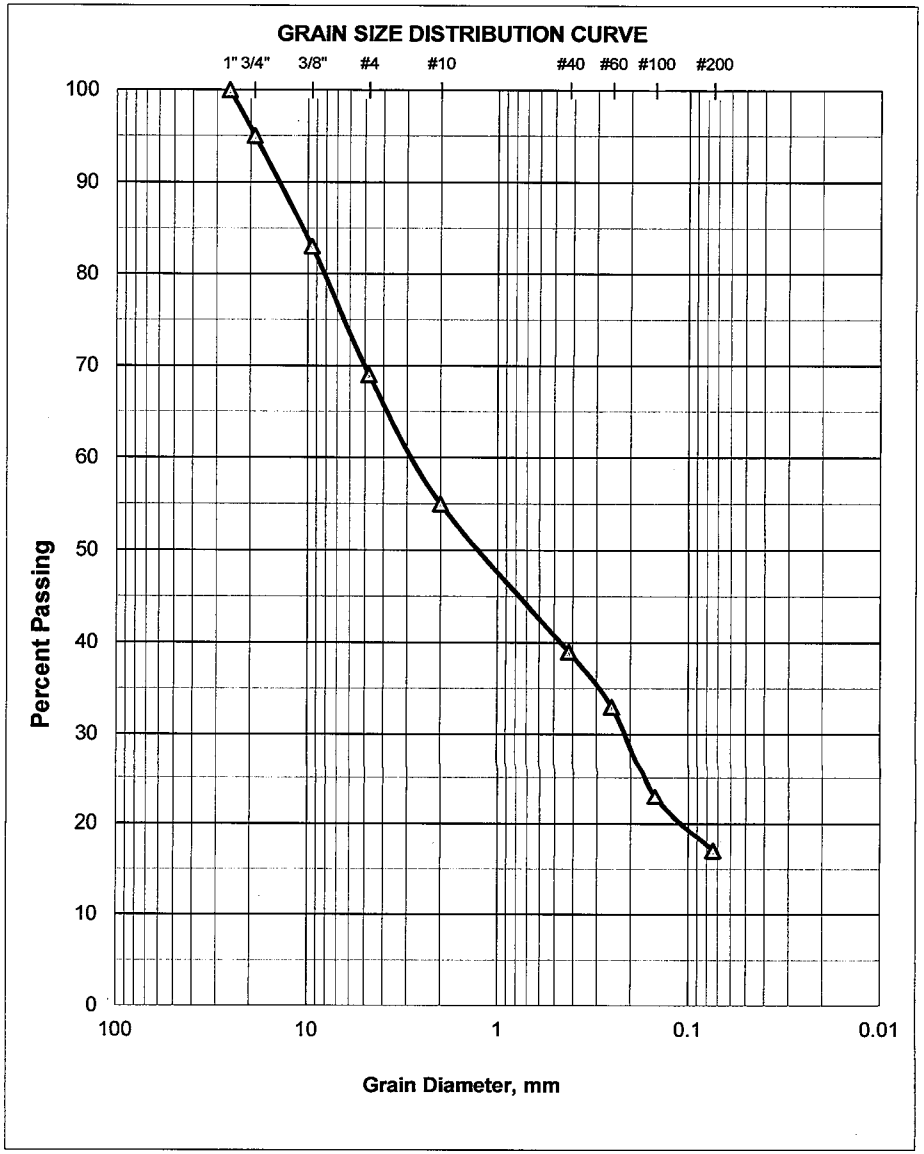
Total Dry Weight Before Wash, (gr) =	**486.00**
Percent Finer than No. 2 00 Sieve by Wash Method=	**17%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	31
Coarse Sand	>No. 4-≤ No. 40	30
Fine Sand	>No. 40-≤ No. 200	22
Silt and Clays	>No. 200	17
Water Content		6%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-1248R	Sample No.:	5A
Depth:	8.0'-9.7'		
Date:	10/16/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	13.60	13.60	3	97	
4	4.76	8.60	22.20	6	94	AASHTO Classification:
10	2.00	5.10	27.30	7	93	
40	0.420	27.90	55.20	15	85	A-3
60	0.250	67.90	123.10	33	67	
100	0.149	164.50	287.60	78	22	
200	0.074	50.60	338.20	92	8	
PAN						

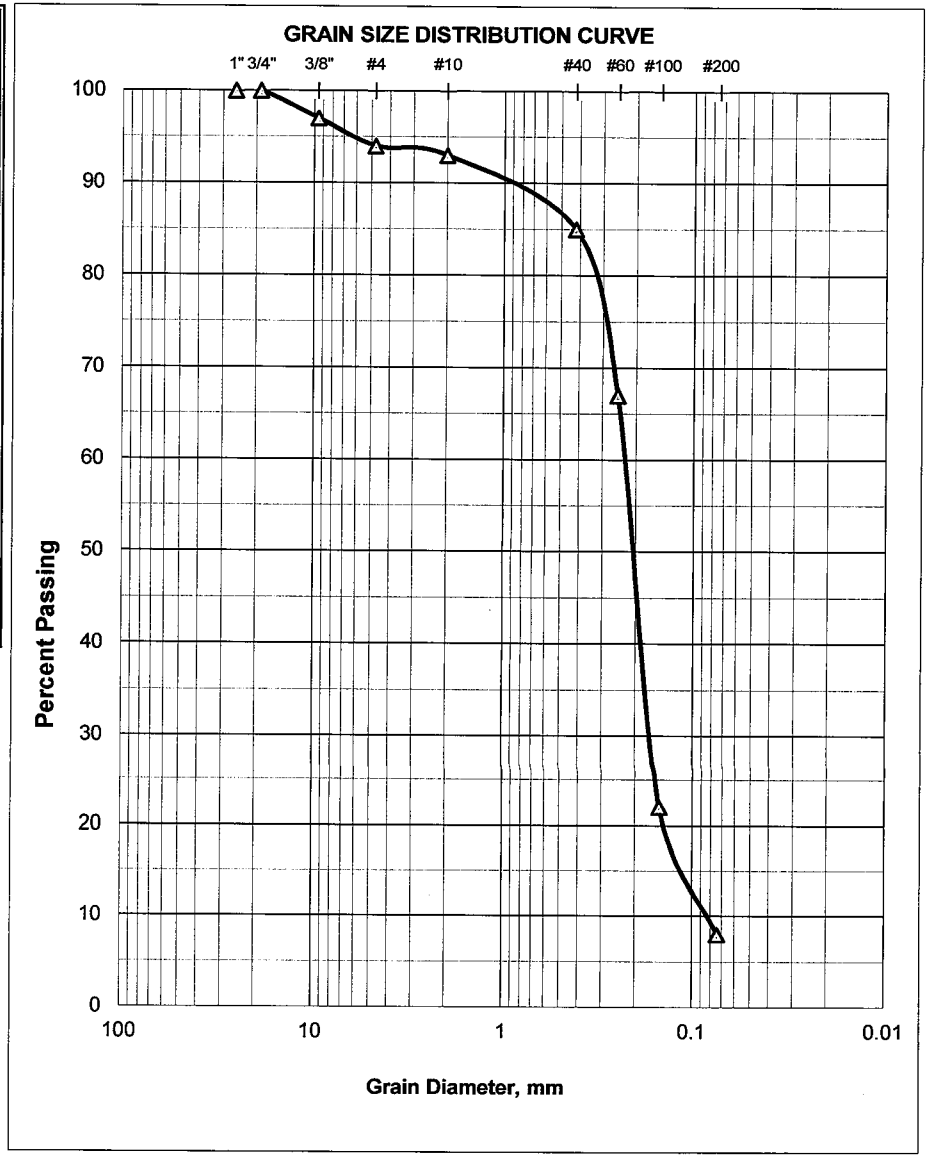
Total Dry Weight Before Wash, (gr) =	365.10
Percent Finer than No. 200 Sieve by Wash Method=	8%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	6
Coarse Sand	>No. 4-≤ No. 40	9
Fine Sand	>No. 40-≤ No. 200	77
Silt and Clays	>No. 200	8
Water Content		13%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-1252R	**Sample No.:**	2
Depth:	2.0'-4.0'		
Date:	10/16/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	104.50	104.50	22	78	
3/8"	9.51	45.10	149.60	32	68	
4	4.76	40.50	190.10	41	59	AASHTO Classification:
10	2.00	23.50	213.60	46	54	
40	0.420	31.90	245.50	53	47	A-1-b
60	0.250	27.20	272.70	59	41	
100	0.149	99.10	371.80	80	20	
200	0.074	54.00	425.80	92	8	
PAN						

Total Dry Weight Before Wash, (gr) =	**460.70**
Percent Finer than No. 200 Sieve by Wash Method=	**8%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	41
Coarse Sand	>No. 4-≤ No. 40	12
Fine Sand	>No. 40-≤ No. 200	39
Silt and Clays	>No. 200	8
Water Content		3%

Respectfully Submitted,
HR Engineering Services, Inc.

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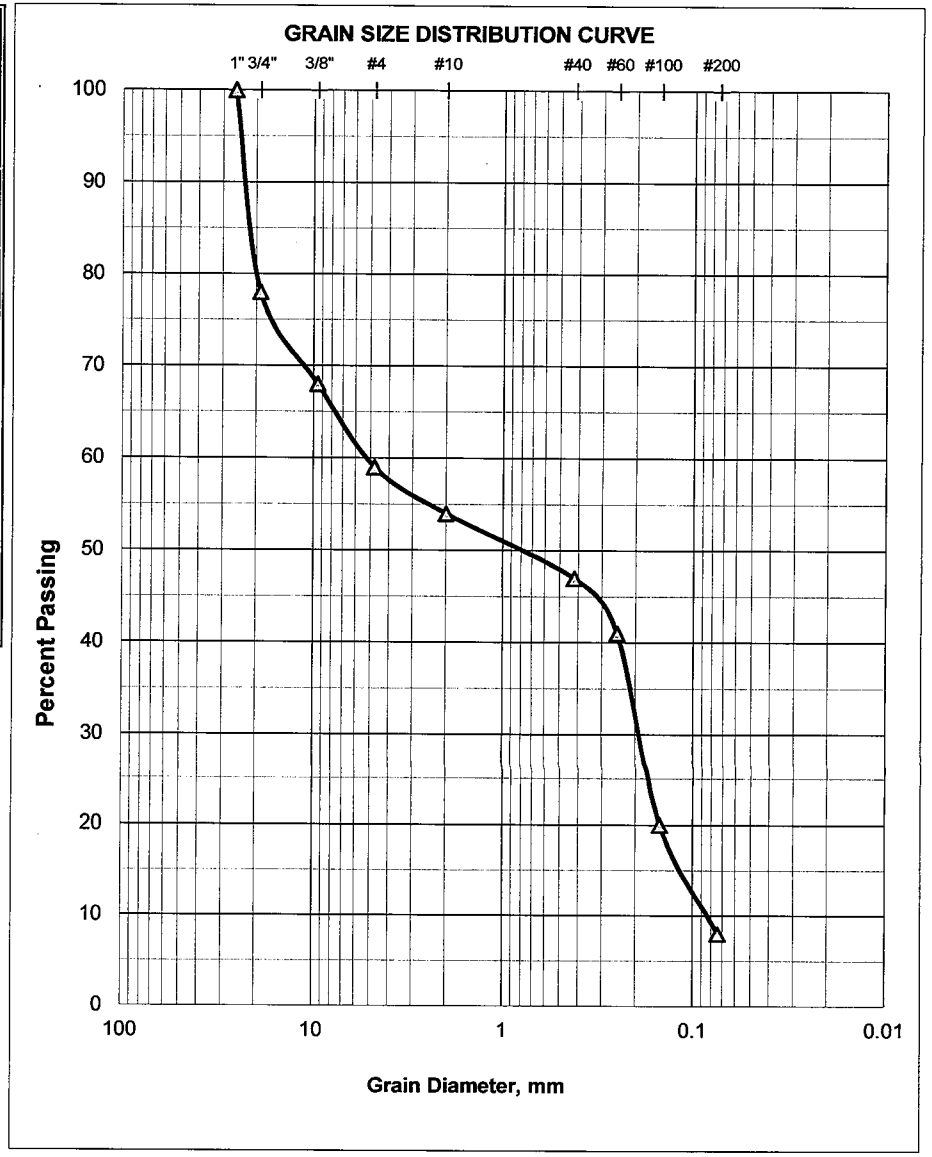
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-1252R	**Sample No.:**	3
Depth:	4.0'-6.0'		
Date:	10/16/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	19.20	19.20	4	96	
4	4.76	23.30	42.50	9	91	AASHTO Classification:
10	2.00	21.20	63.70	14	86	
40	0.420	38.70	102.40	23	77	A-2-4
60	0.250	56.60	159.00	36	64	
100	0.149	141.10	300.10	69	31	
200	0.074	59.00	359.10	83	17	
PAN						

Total Dry Weight Before Wash, (gr) =	**432.00**
Percent Finer than No. 2 00 Sieve by Wash Method=	**17%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	9
Coarse Sand	>No. 4-≤ No. 40	14
Fine Sand	>No. 40-≤ No. 200	60
Silt and Clays	>No. 200	17
Water Content		7%

Respectfully Submitted,
HR Engineering Services, Inc.

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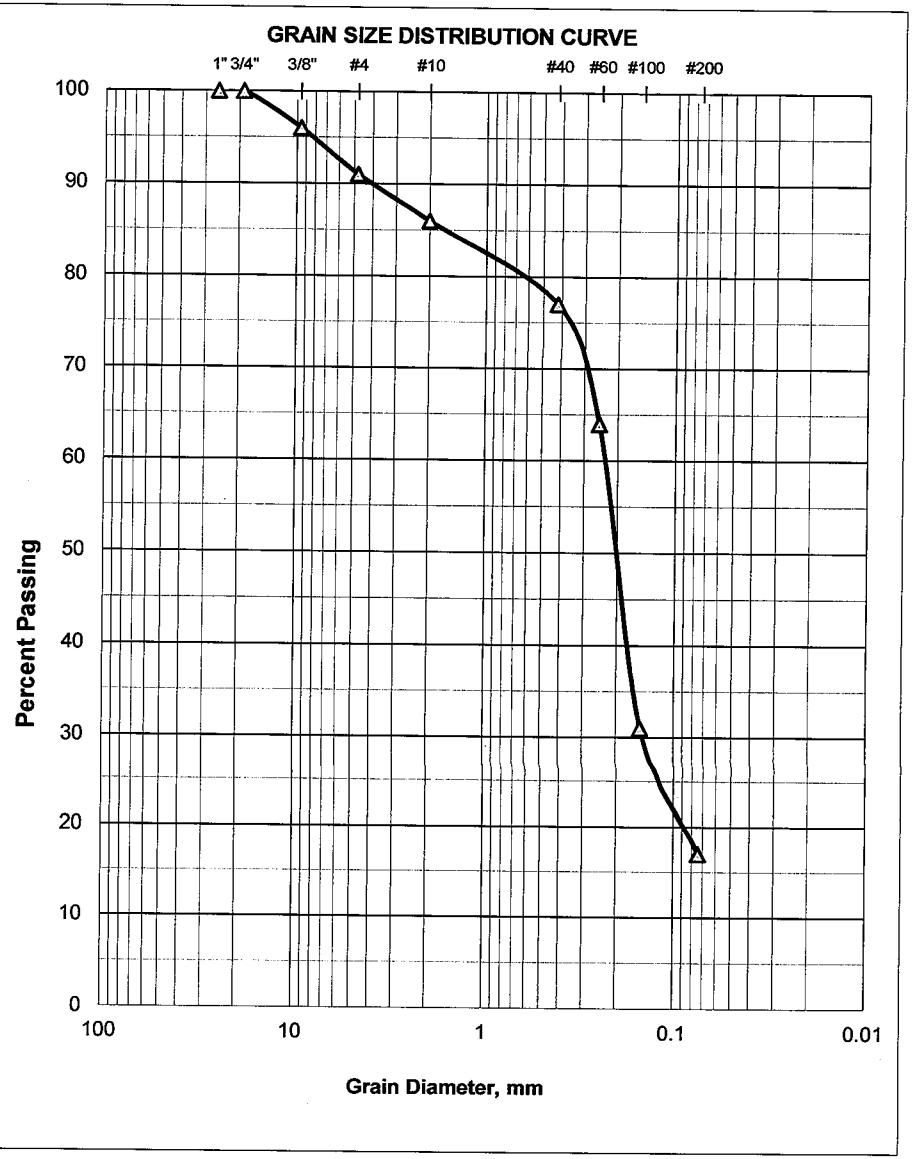

HR ENGINEERING SERVICES, INC.

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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-1252R	**Sample No.:**	4C
Depth:	7.5'-8.0'		
Date:	10/16/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	26.50	26.50	24	76	
4	4.76	13.80	40.30	36	64	AASHTO Classification:
10	2.00	16.90	57.20	52	48	
40	0.420	17.30	74.50	67	33	A-1-b
60	0.250	4.90	79.40	72	28	
100	0.149	7.50	86.90	79	21	
200	0.074	7.60	94.50	85	15	
PAN						

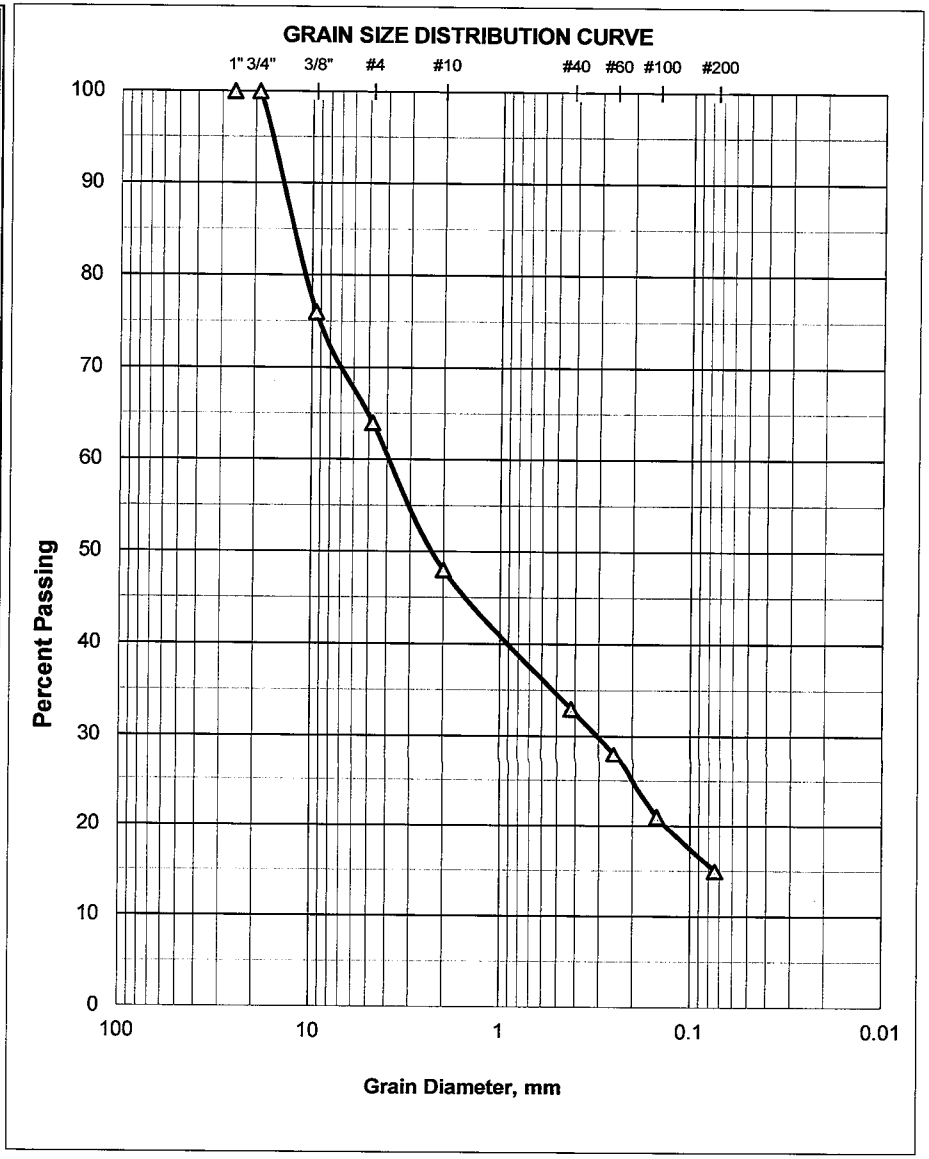
Total Dry Weight Before Wash, (gr) =	**109.90**
Percent Finer than No. 200 Sieve by Wash Method=	**15%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	36
Coarse Sand	>No. 4-≤ No. 40	31
Fine Sand	>No. 40-≤ No. 200	18
Silt and Clays	>No. 200	15
Water Content		4%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

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Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R
Boring No.: RB-1252R **Sample No.:** 5 **Depth:** 8.0'-10.0'
Date: 10/16/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	12.10	12.10	10	90	
3/8"	9.51	14.80	26.90	22	78	
4	4.76	10.20	37.10	31	69	AASHTO Classification:
10	2.00	11.40	48.50	41	59	
40	0.420	16.00	64.50	54	46	A-1-b
60	0.250	12.30	76.80	65	35	
100	0.149	16.60	93.40	79	21	
200	0.074	8.90	102.30	87	13	
PAN						

Total Dry Weight Before Wash, (gr) =	117.40
Percent Finer than No. 200 Sieve by Wash Method=	13%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	31
Coarse Sand	>No. 4-≤ No. 40	23
Fine Sand	>No. 40-≤ No. 200	33
Silt and Clays	>No. 200	13
Water Content		5%

Respectfully Submitted,
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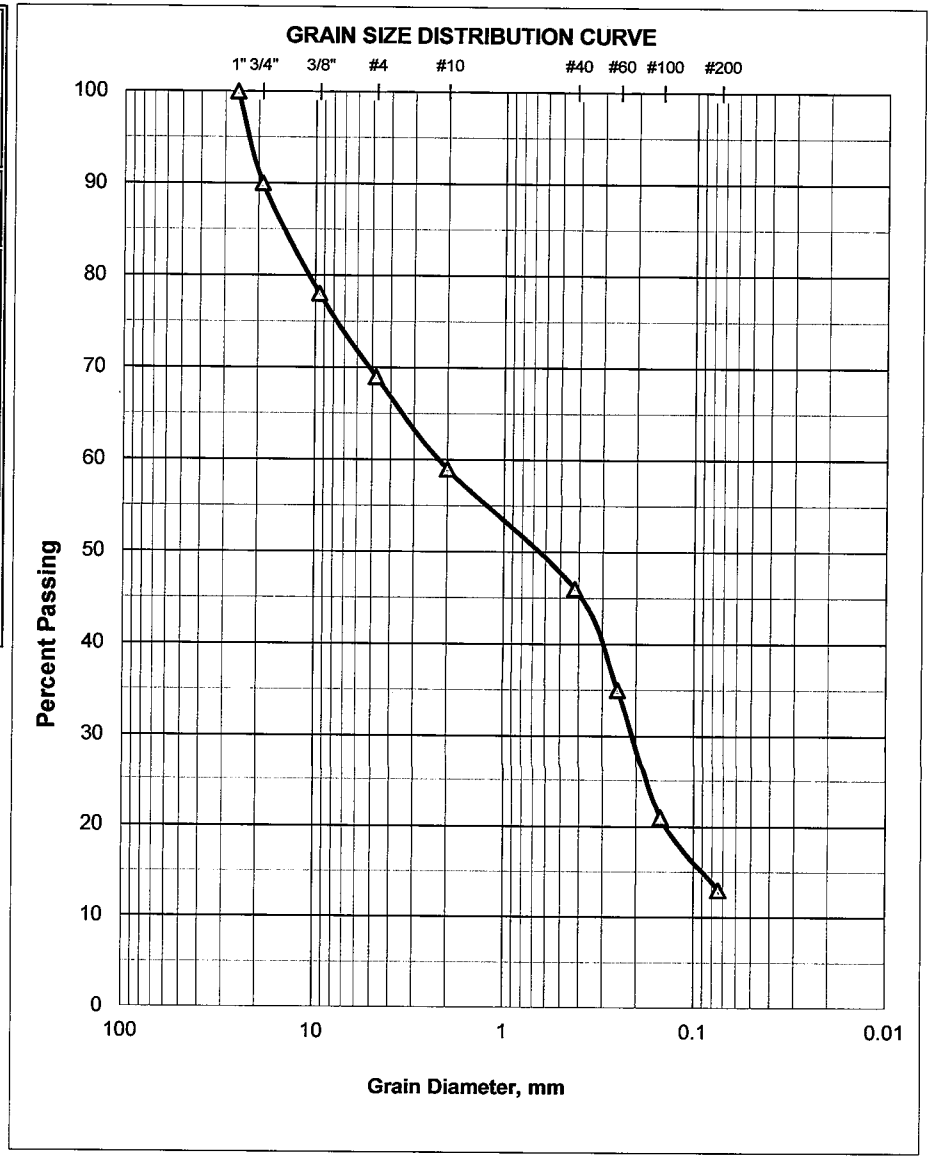

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Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2002R	Sample No.:	1B
Depth:	0.5'-2.0'		
Date:	10/16/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	52.00	52.00	13	87	
3/8"	9.51	6.70	58.70	14	86	
4	4.76	11.70	70.40	17	83	AASHTO Classification:
10	2.00	10.30	80.70	20	80	
40	0.420	37.80	118.50	29	71	A-3
60	0.250	88.30	206.80	52	48	
100	0.149	144.40	351.20	88	12	
200	0.074	32.90	384.10	96	4	
PAN						

Total Dry Weight Before Wash, (gr) =	397.50
Percent Finer than No. 200 Sieve by Wash Method=	4%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	17
Coarse Sand	>No. 4-≤ No. 40	12
Fine Sand	>No. 40-≤ No. 200	67
Silt and Clays	>No. 200	4
Water Content		4%

Respectfully Submitted,
HR Engineering Services, Inc.

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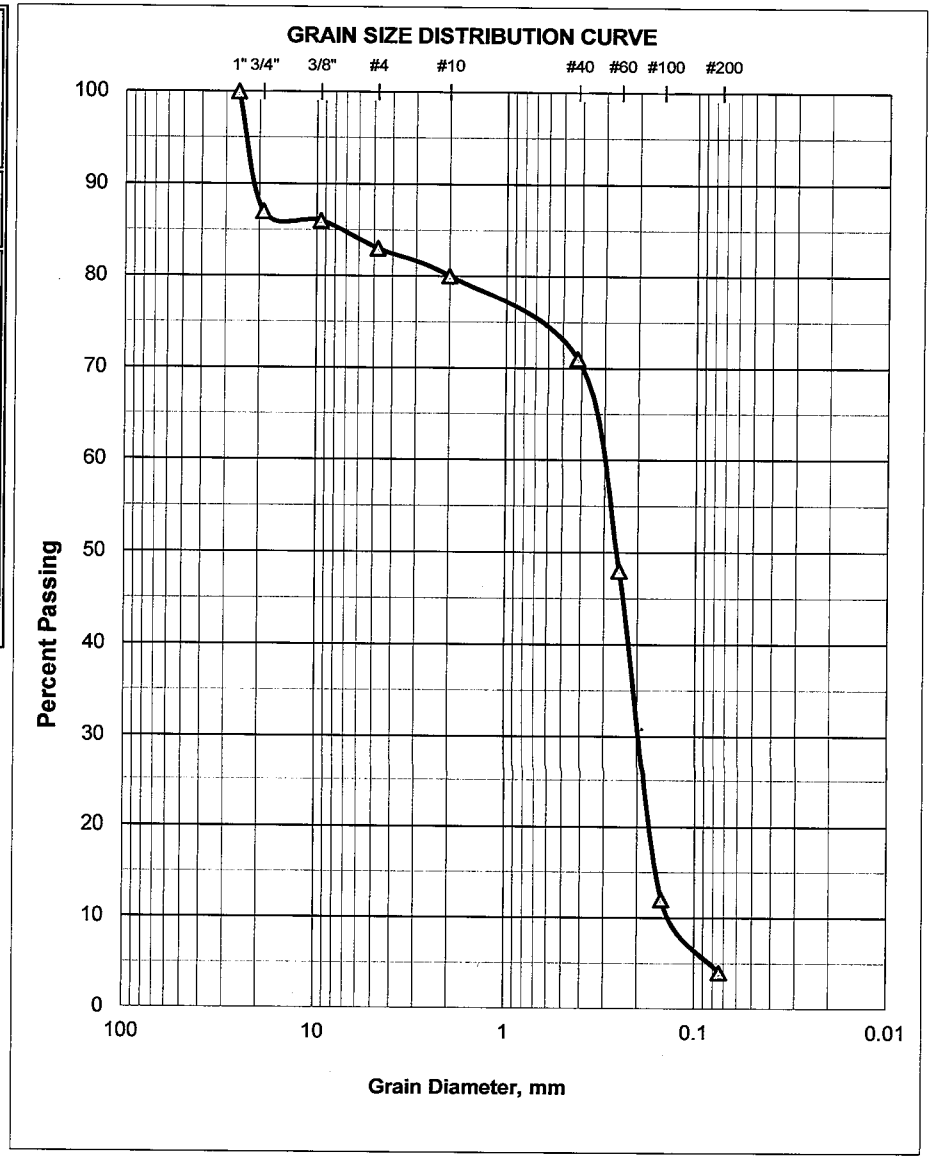

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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-2002R	**Sample No.:**	2
Depth:	2.0'-4.0'		
Date:	10/16/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	8.50	8.50	2	98	AASHTO Classification:
4	4.76	18.70	27.20	7	93	
10	2.00	11.90	39.10	11	89	
40	0.420	41.50	80.60	23	77	A-3
60	0.250	89.20	169.80	48	52	
100	0.149	136.80	306.60	88	12	
200	0.074	25.50	332.10	95	5	
PAN						

Total Dry Weight Before Wash, (gr) =	**347.80**
Percent Finer than No. 200 Sieve by Wash Method=	**5%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	7
Coarse Sand	>No. 4-≤ No. 40	16
Fine Sand	>No. 40-≤ No. 200	72
Silt and Clays	>No. 200	5
Water Content		5%

Respectfully Submitted,
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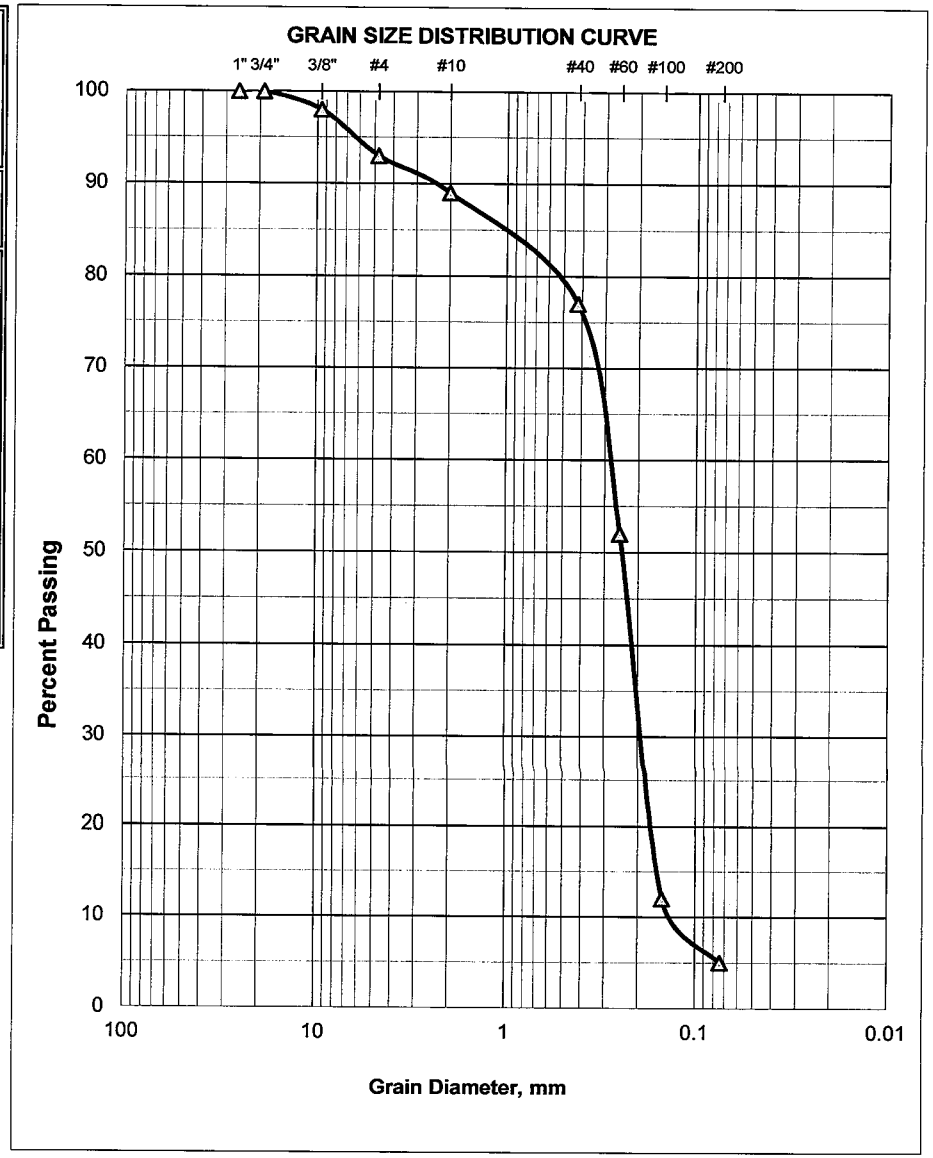

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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-2002R	**Sample No.:**	3
Depth:	4.0'-6.0'		
Date:	10/16/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	6.30	6.30	1	99	
4	4.76	11.20	17.50	3	97	AASHTO Classification:
10	2.00	9.70	27.20	6	94	
40	0.420	45.40	72.60	16	84	A-3
60	0.250	115.30	187.90	42	58	
100	0.149	177.30	365.20	83	17	
200	0.074	41.30	406.50	92	8	
PAN						

Total Dry Weight Before Wash, (gr) =	437.80
Percent Finer than No. 200 Sieve by Wash Method=	8%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	3
Coarse Sand	>No. 4-≤ No. 40	13
Fine Sand	>No. 40-≤ No. 200	76
Silt and Clays	>No. 200	8
Water Content		7%

Respectfully Submitted,
HR Engineering Services, Inc.

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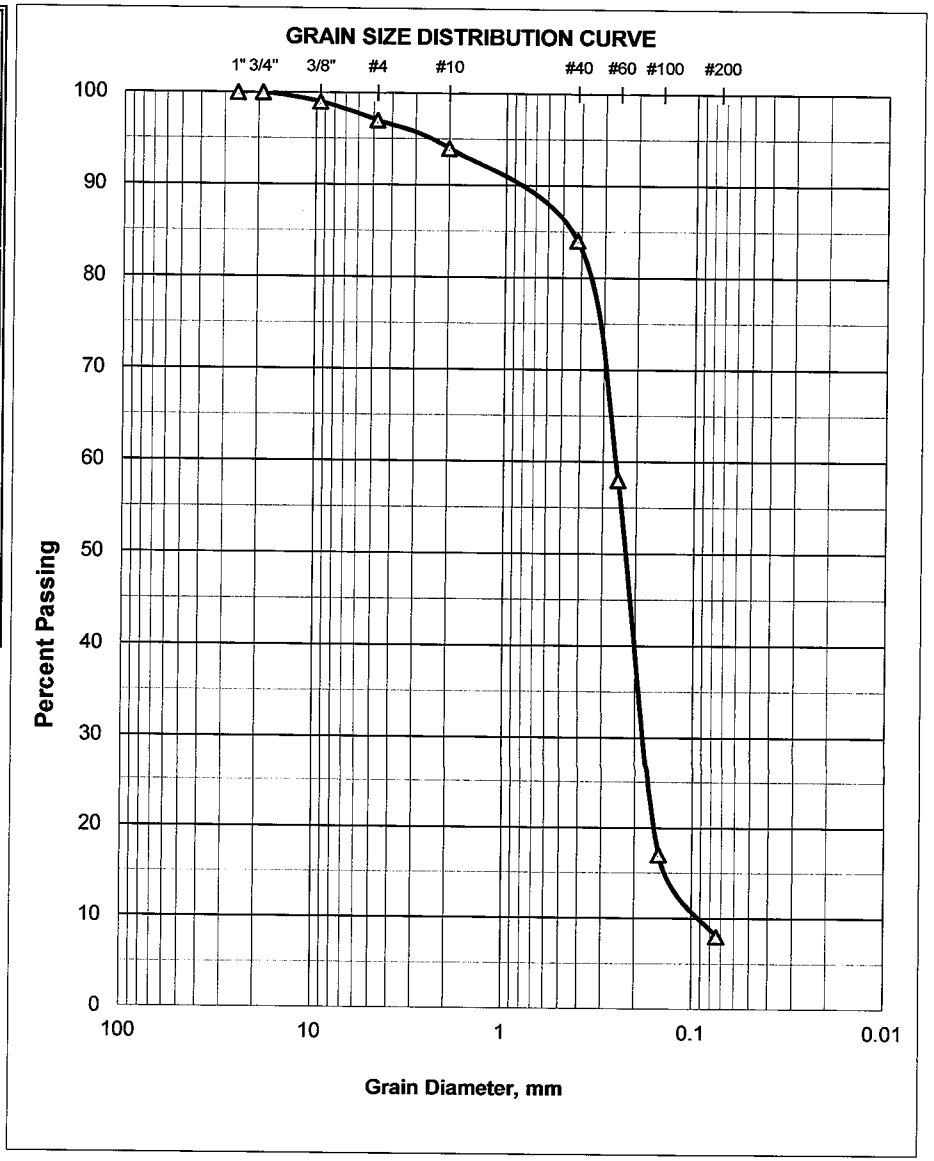

HR ENGINEERING SERVICES, INC.

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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2002R	Sample No.:	4
Depth:	6.0'-8.0'		
Date:	10/16/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	9.80	9.80	1	99	
3/8"	9.51	52.90	62.70	12	88	AASHTO Classification:
4	4.76	41.80	104.50	20	80	
10	2.00	34.60	139.10	26	74	
40	0.420	66.50	205.60	39	61	A-2-4
60	0.250	86.80	292.40	56	44	
100	0.149	121.10	413.50	80	20	
200	0.074	42.20	455.70	88	12	
PAN						

Total Dry Weight Before Wash, (gr) =	516.00
Percent Finer than No. 200 Sieve by Wash Method=	12%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	20
Coarse Sand	>No. 4-≤ No. 40	19
Fine Sand	>No. 40-≤ No. 200	49
Silt and Clays	>No. 200	12
Water Content		8%

Respectfully Submitted,
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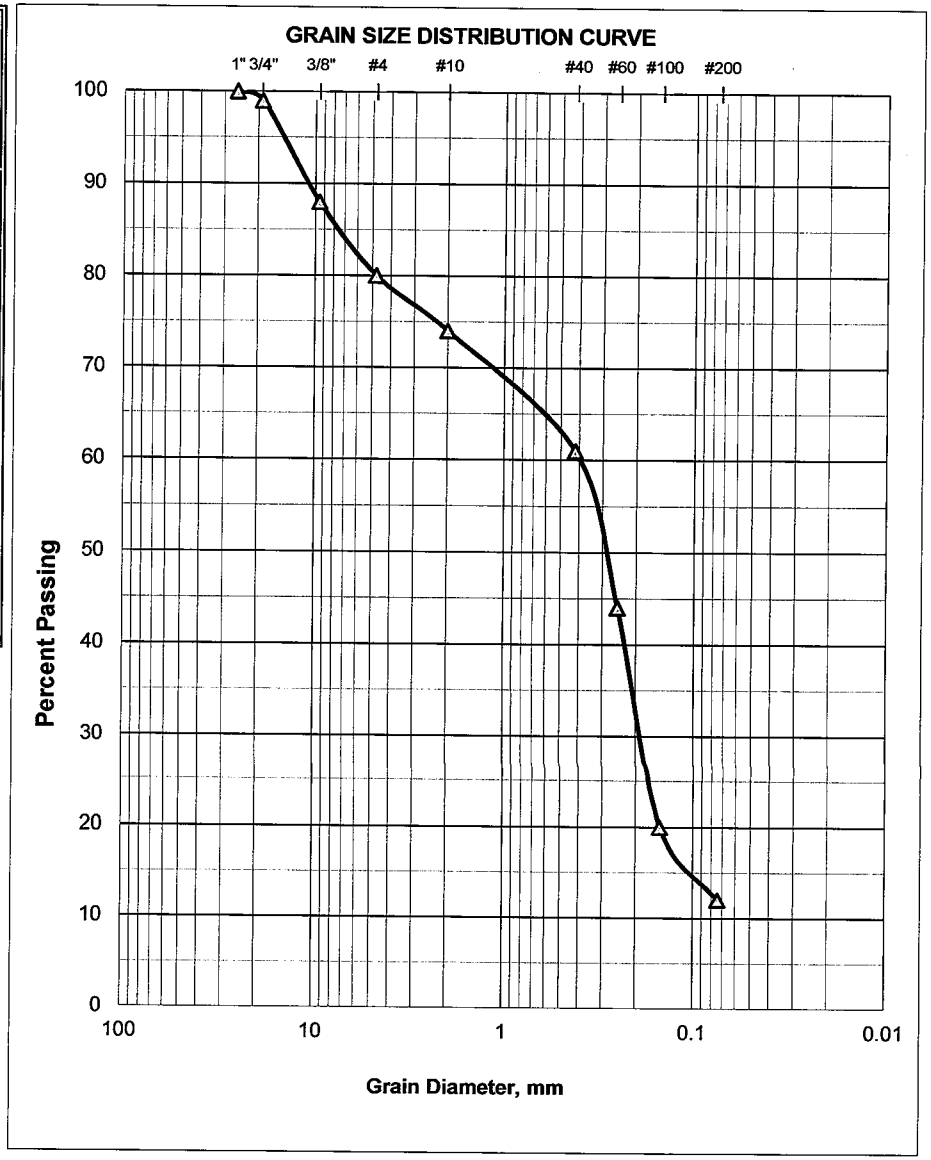

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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2006R	Sample No.:	1B
Depth:	1.0'-2.0'		
Date:	10/16/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	21.10	21.10	43	57	
4	4.76	1.10	22.20	45	55	AASHTO Classification:
10	2.00	2.90	25.10	51	49	
40	0.420	6.10	31.20	64	36	A-1-b
60	0.250	2.50	33.70	69	31	
100	0.149	4.10	37.80	78	22	
200	0.074	3.30	41.10	85	15	
PAN						

Total Dry Weight Before Wash, (gr) =	48.30
Percent Finer than No. 200 Sieve by Wash Method=	15%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	45
Coarse Sand	>No. 4-≤ No. 40	19
Fine Sand	>No. 40-≤ No. 200	21
Silt and Clays	>No. 200	15
Water Content		1%

Respectfully Submitted,
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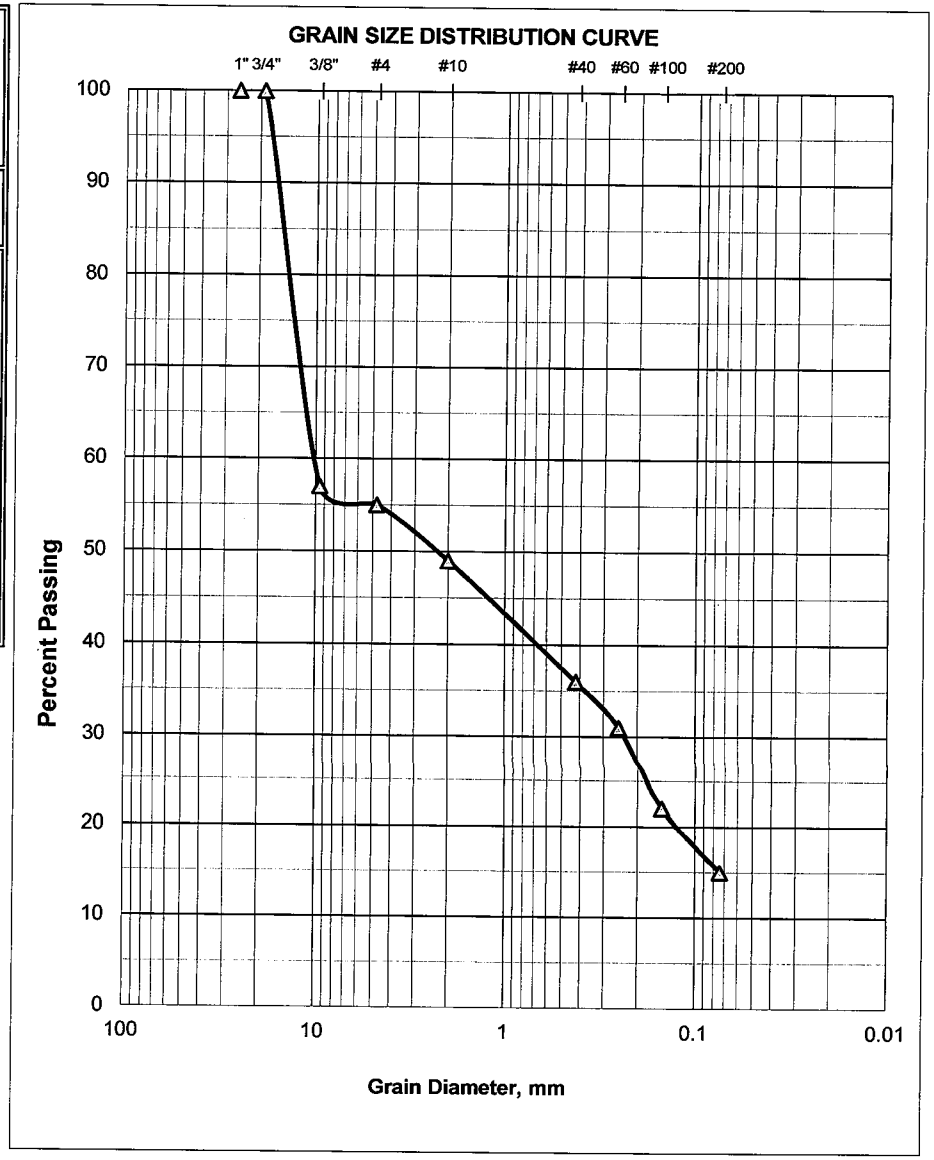

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Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2006R **Sample No.:** 2 **Depth:** 2.0'-4.0'

Date: 10/10/14

Technician:	H.C.
Date Sample Placed in Oven:	10/13/2014
Time in / Out of Oven :	10/13/14 12:00 PM TO 10/14/14 12:00 PM
Wt. of Wet Soil + Can, grams	446.50
Wt. of Dry Soil + Can, grams	401.60
Wt. of Can, grams No. 711	9.00
Wt. of Dry Soil, grams	392.60
Wt. of Moisture, grams	44.90
Water Content, w%	11%
Wt. of Dry Soil + Can Before Wash, grams	401.60
Wt. of Can, grams No. 711	9.00
Wt. of Dry Soil Before Wash, grams	392.60
Time in / Out of Oven :	10/15/14 7:00 AM TO 10/16/14 7:00 AM
Wt. of Dry Soil + Can After Wash, grams	385.70
Wt. of Dry Soil After Wash, grams	376.70
Total Loss, grams	15.90
Percent Finer Than No. 200 Sieve	4%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2006R **Sample No.:** 5 **Depth:** 8.0'-10.0'

Date: 10/10/14

Technician:	H.C.					
Date Sample Placed in Oven:	10/13/2014					
Time in / Out of Oven :	10/13/14	12:00 PM	TO	10/14/14	12:00 PM	
Wt. of Wet Soil + Can, grams	524.30					
Wt. of Dry Soil + Can, grams	428.50					
Wt. of Can, grams No. 712	8.10					
Wt. of Dry Soil, grams	420.40					
Wt. of Moisture, grams	95.80					
Water Content, w%	23%					
Date Sample Placed in Furnace:	10/15/14					
Time in / out of furnace (minimum 6 hrs):	10/15/14	5:00 AM	TO	10/15/14	11:00 AM	
Weight of Crucible & Oven-Dried Sample:	29.90					
Weight of Crucible and Sample After Ignition:	29.60					
Weight of Crucible: No. 28	15.60					
Weight of Oven-Dried Soil:	14.30					
Weight Loss due to Ignition:	0.30					
Percent Organics:	2%					

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name:	I-95 CDC Phase 3A-1			**Project No.:**	HR12-891R
Boring No.:	RB-2006R	**Sample No.:**	5	**Depth:**	8.0'-10.0'
Date:	10/10/14				

Technician:		H.C.				
Date Sample Placed in Oven:		10/13/2014				
Time in / Out of Oven :		10/13/14	12:00 PM	TO	10/14/14	12:00 PM
Wt. of Wet Soil + Can, grams		524.30				
Wt. of Dry Soil + Can, grams		428.50				
Wt. of Can, grams	**No. 712**	8.10				
Wt. of Dry Soil, grams		420.40				
Wt. of Moisture, grams		95.80				
Water Content, w%		23%				
Wt. of Dry Soil + Can Before Wash, grams		412.20				
Wt. of Can, grams	**No. 712**	8.10				
Wt. of Dry Soil Before Wash, grams		404.10				
Time in / Out of Oven :		10/15/14	7:00 AM	TO	10/16/14	7:00 AM
Wt. of Dry Soil + Can After Wash, grams		398.90				
Wt. of Dry Soil After Wash, grams		390.80				
Total Loss, grams		13.30				
Percent Finer Than No. 200 Sieve		3%				

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

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Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2010R **Sample No.:** 2A **Depth:** 2.0'-3.2'

Date: 10/10/14

Technician:	H.C.
Date Sample Placed in Oven:	10/13/2014
Time in / Out of Oven :	10/13/14 12:00 PM TO 10/14/14 12:00 PM
Wt. of Wet Soil + Can, grams	394.80
Wt. of Dry Soil + Can, grams	340.30
Wt. of Can, grams No. 713	8.90
Wt. of Dry Soil, grams	331.40
Wt. of Moisture, grams	54.50
Water Content, w%	16%
Wt. of Dry Soil + Can Before Wash, grams	340.30
Wt. of Can, grams No. 713	8.90
Wt. of Dry Soil Before Wash, grams	331.40
Time in / Out of Oven :	10/15/14 9:00 AM TO 10/16/14 9:00 AM
Wt. of Dry Soil + Can After Wash, grams	328.80
Wt. of Dry Soil After Wash, grams	319.90
Total Loss, grams	11.50
Percent Finer Than No. 200 Sieve	3%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2010R **Sample No.:** 2B **Depth:** 3.2'-4.0'

Date: 10/10/14

Technician:	H.C.
Date Sample Placed in Oven:	10/13/2014
Time in / Out of Oven :	10/13/14 1:00 PM TO 10/14/14 1:00 PM
Wt. of Wet Soil + Can, grams	221.50
Wt. of Dry Soil + Can, grams	184.50
Wt. of Can, grams No. 714	9.00
Wt. of Dry Soil, grams	175.50
Wt. of Moisture, grams	37.00
Water Content, w%	21%
Wt. of Dry Soil + Can Before Wash, grams	184.50
Wt. of Can, grams No. 714	9.00
Wt. of Dry Soil Before Wash, grams	175.50
Time in / Out of Oven :	10/15/14 9:00 AM TO 10/16/14 9:00 AM
Wt. of Dry Soil + Can After Wash, grams	168.30
Wt. of Dry Soil After Wash, grams	159.30
Total Loss, grams	16.20
Percent Finer Than No. 200 Sieve	9%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1			Project No.:	HR12-891R
Boring No.:	RB-2014R	Sample No.:	1B	Depth:	0.5'-2.0'
Date:	10/16/2014			Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	12.10	12.10	2	98	
3/8"	9.51	12.40	24.50	6	94	
4	4.76	45.30	69.80	17	83	AASHTO Classification:
10	2.00	57.80	127.60	31	69	
40	0.420	79.40	207.00	50	50	A-1-b
60	0.250	27.80	234.80	57	43	
100	0.149	47.30	282.10	69	31	
200	0.074	34.70	316.80	77	23	
PAN						

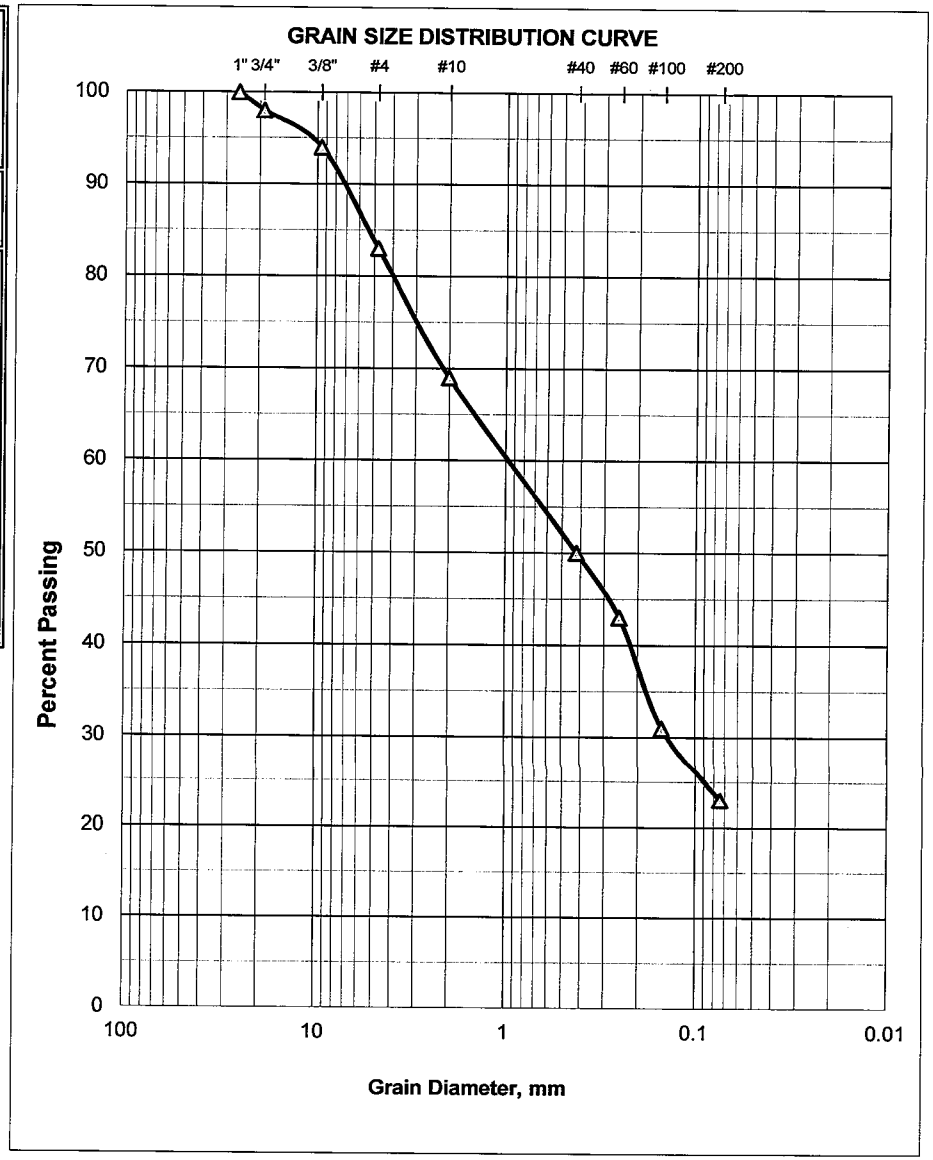
Total Dry Weight Before Wash, (gr) =	406.60
Percent Finer than No. 200 Sieve by Wash Method=	23%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	17
Coarse Sand	>No. 4-≤ No. 40	33
Fine Sand	>No. 40-≤ No. 200	27
Silt and Clays	>No. 200	23
Water Content		3%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1			Project No.:	HR12-891R
Boring No.:	RB-2014R	Sample No.:	2A	Depth:	2.0'-3.0'
Date:	10/16/2014			Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	50.60	50.60	15	85	
4	4.76	18.50	69.10	21	79	AASHTO Classification:
10	2.00	12.10	81.20	25	75	
40	0.420	40.30	121.50	37	63	A-3
60	0.250	58.90	180.40	56	44	
100	0.149	81.90	262.30	81	19	
200	0.074	28.10	290.40	90	10	
PAN						

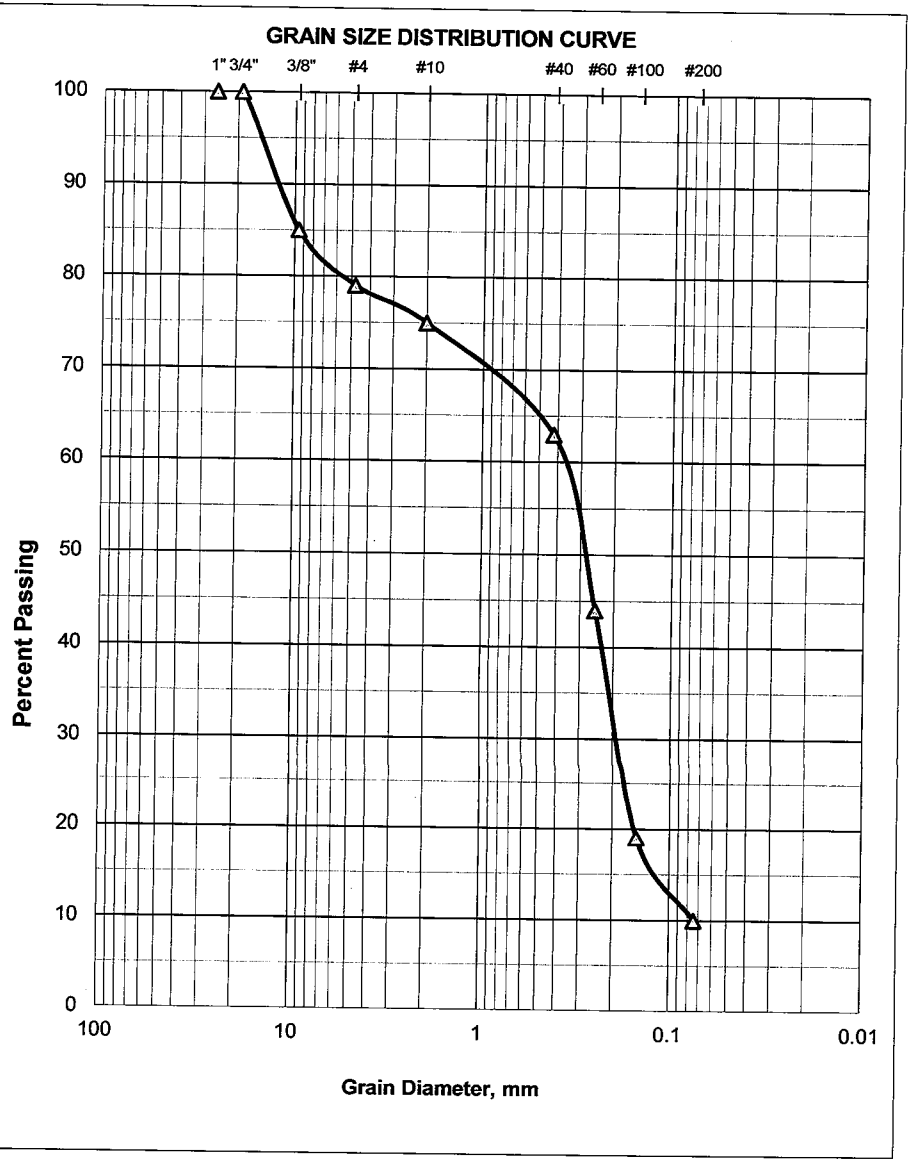
Total Dry Weight Before Wash, (gr) =	320.90
Percent Finer than No. 200 Sieve by Wash Method=	10%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	21
Coarse Sand	>No. 4-≤ No. 40	16
Fine Sand	>No. 40-≤ No. 200	53
Silt and Clays	>No. 200	10
Water Content		5%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2014R	Sample No.:	3A
Depth:	4.0'-5.0'		
Date:	10/16/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	32.50	32.50	12	88	
3/8"	9.51	34.20	66.70	26	74	
4	4.76	18.60	85.30	33	67	AASHTO Classification:
10	2.00	11.00	96.30	37	63	
40	0.420	28.90	125.20	48	52	A-2-4
60	0.250	42.10	167.30	65	35	
100	0.149	48.20	215.50	84	16	
200	0.074	13.70	229.20	89	11	
PAN						

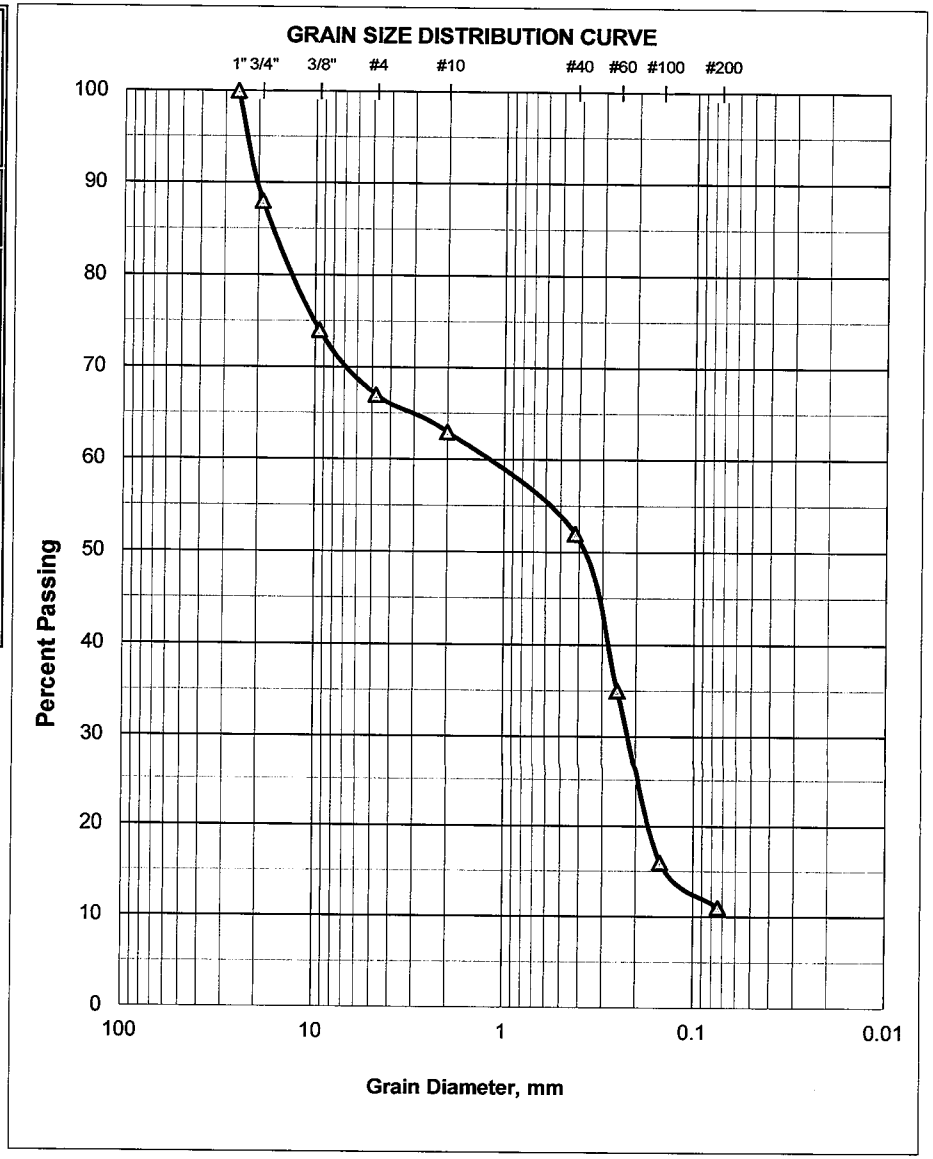
Total Dry Weight Before Wash, (gr) =	256.20
Percent Finer than No. 200 Sieve by Wash Method=	11%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	33
Coarse Sand	>No. 4-≤ No. 40	15
Fine Sand	>No. 40-≤ No. 200	41
Silt and Clays	>No. 200	11
Water Content		5%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
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REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2014R **Sample No.:** 5 **Depth:** 8.0'-10.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 5:00 AM TO 11/08/14 5:00 AM
Wt. of Wet Soil + Can, grams	255.50
Wt. of Dry Soil + Can, grams	254.10
Wt. of Can, grams No. 610	9.00
Wt. of Dry Soil, grams	245.10
Wt. of Moisture, grams	1.40
Water Content, w%	1%
Date Sample Placed in Furnace:	11/09/14
Time in / out of furnace (minimum 6 hrs):	11/09/14 11:00 AM TO 11/09/14 5:00 PM
Weight of Crucible & Oven-Dried Sample:	27.60
Weight of Crucible and Sample After Ignition:	27.10
Weight of Crucible: No. 54	15.00
Weight of Oven-Dried Soil:	12.60
Weight Loss due to Ignition:	0.50
Percent Organics:	4%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2014R **Sample No.:** 5 **Depth:** 8.0'-10.0'

Date: 11/07/14

Technician:	H.C.				
Date Sample Placed in Oven:	11/07/2014				
Time in / Out of Oven :	11/07/14	5:00 AM	TO	11/08/14	5:00 AM
Wt. of Wet Soil + Can, grams	255.50				
Wt. of Dry Soil + Can, grams	254.10				
Wt. of Can, grams No. 610	9.00				
Wt. of Dry Soil, grams	245.10				
Wt. of Moisture, grams	1.40				
Water Content, w%	1%				
Wt. of Dry Soil + Can Before Wash, grams	241.60				
Wt. of Can, grams No. 610	9.00				
Wt. of Dry Soil Before Wash, grams	232.60				
Time in / Out of Oven :	11/09/14	10:00 AM	TO	11/10/14	10:00 AM
Wt. of Dry Soil + Can After Wash, grams	231.40				
Wt. of Dry Soil After Wash, grams	222.40				
Total Loss, grams	10.20				
Percent Finer Than No. 200 Sieve	4%				

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2026CL **Sample No.:** 1B **Depth:** 1.0'-2.0'

Date: 11/06/14 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	8.10	8.10	3	97	
4	4.76	7.60	15.70	6	94	AASHTO Classification:
10	2.00	5.70	21.40	8	92	
40	0.420	34.90	56.30	22	78	A-3
60	0.250	58.30	114.60	45	55	
100	0.149	66.90	181.50	72	28	
200	0.074	59.80	241.30	95	5	
PAN						

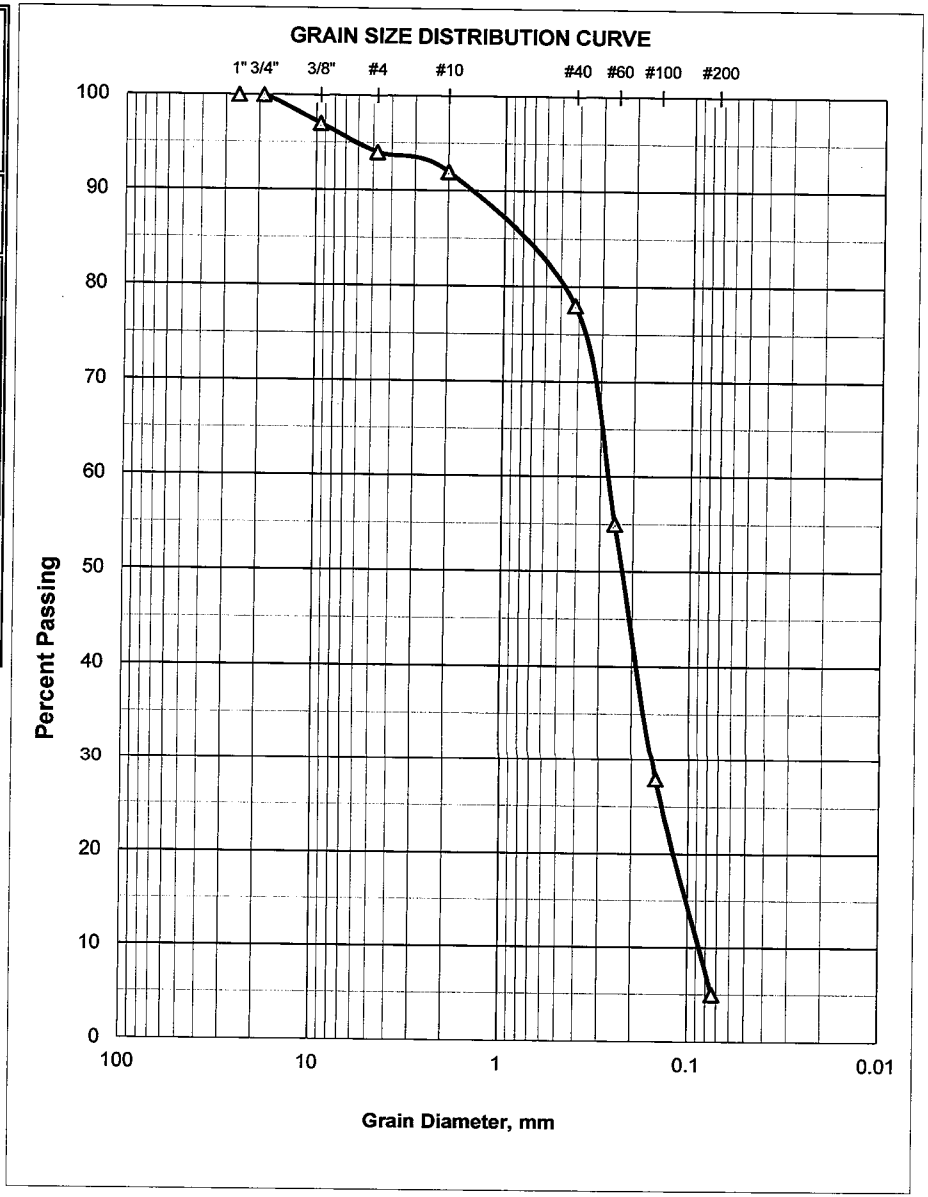
Total Dry Weight Before Wash, (gr) =	251.90
Percent Finer than No. 200 Sieve by Wash Method=	5%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	6
Coarse Sand	>No. 4-≤ No. 40	16
Fine Sand	>No. 40-≤ No. 200	73
Silt and Clays	>No. 200	5
Water Content		12%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-2028CR	**Sample No.:**	1B
Depth:	0.5'-2.0'		
Date:	10/17/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	14.90	14.90	3	97	
3/8"	9.51	48.90	63.80	15	85	
4	4.76	47.40	111.20	27	73	AASHTO Classification:
10	2.00	43.10	154.30	37	63	
40	0.420	59.60	213.90	52	48	A-1-b
60	0.250	49.40	263.30	64	36	
100	0.149	78.20	341.50	84	16	
200	0.074	32.80	374.30	92	8	
PAN						

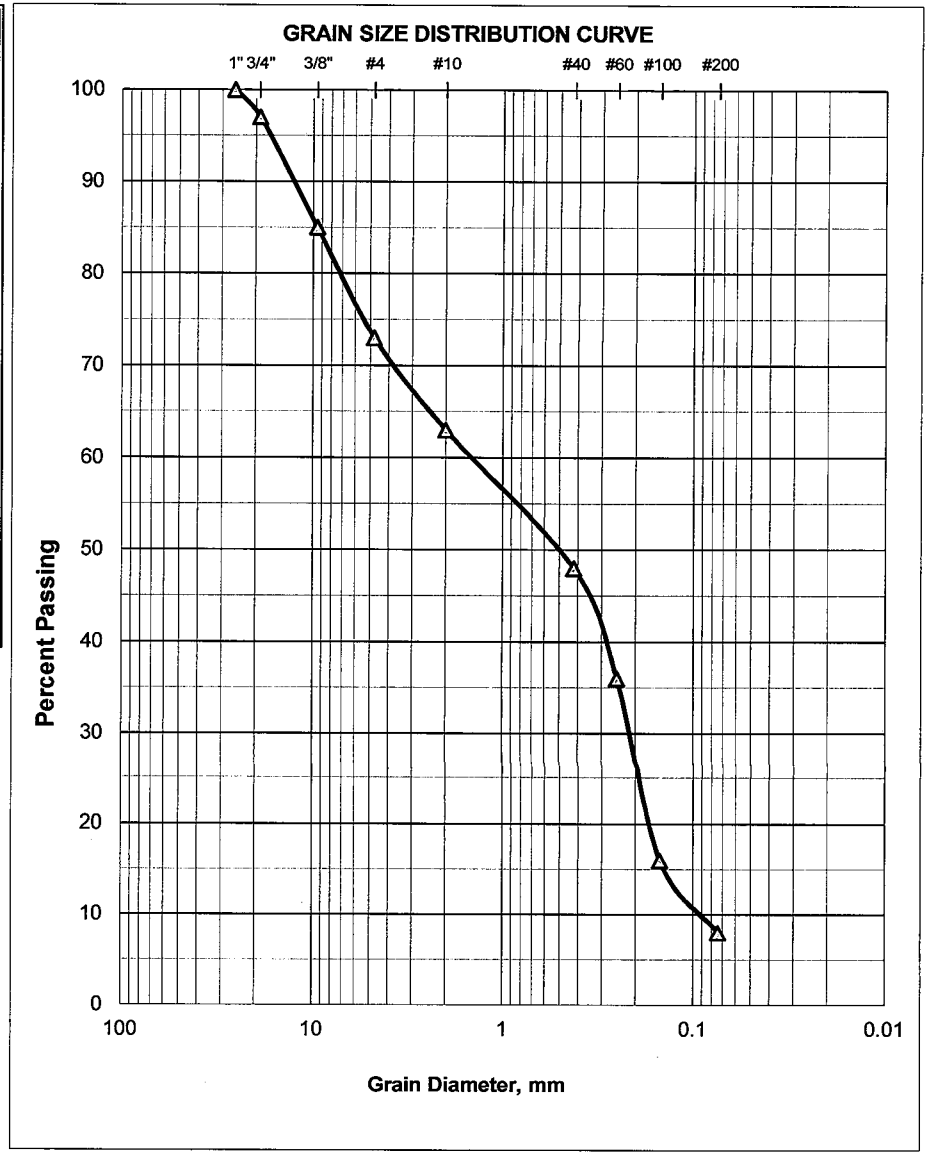
Total Dry Weight Before Wash, (gr) =	**406.10**
Percent Finer than No. 200 Sieve by Wash Method=	**8%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	27
Coarse Sand	>No. 4-≤ No. 40	25
Fine Sand	>No. 40-≤ No. 200	40
Silt and Clays	>No. 200	8
Water Content		8%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1			**Project No.:**	HR12-891R
Boring No.:	RB-2028CR	**Sample No.:**	2	**Depth:**	2.0'-4.0'
Date:	10/17/2014			**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	31.10	31.10	5	95	
3/8"	9.51	40.90	72.00	13	87	AASHTO Classification:
4	4.76	20.50	92.50	16	84	
10	2.00	19.30	111.80	20	80	
40	0.420	75.50	187.30	33	67	A-3
60	0.250	130.10	317.40	57	43	
100	0.149	141.90	459.30	83	17	
200	0.074	53.20	512.50	92	8	
PAN						

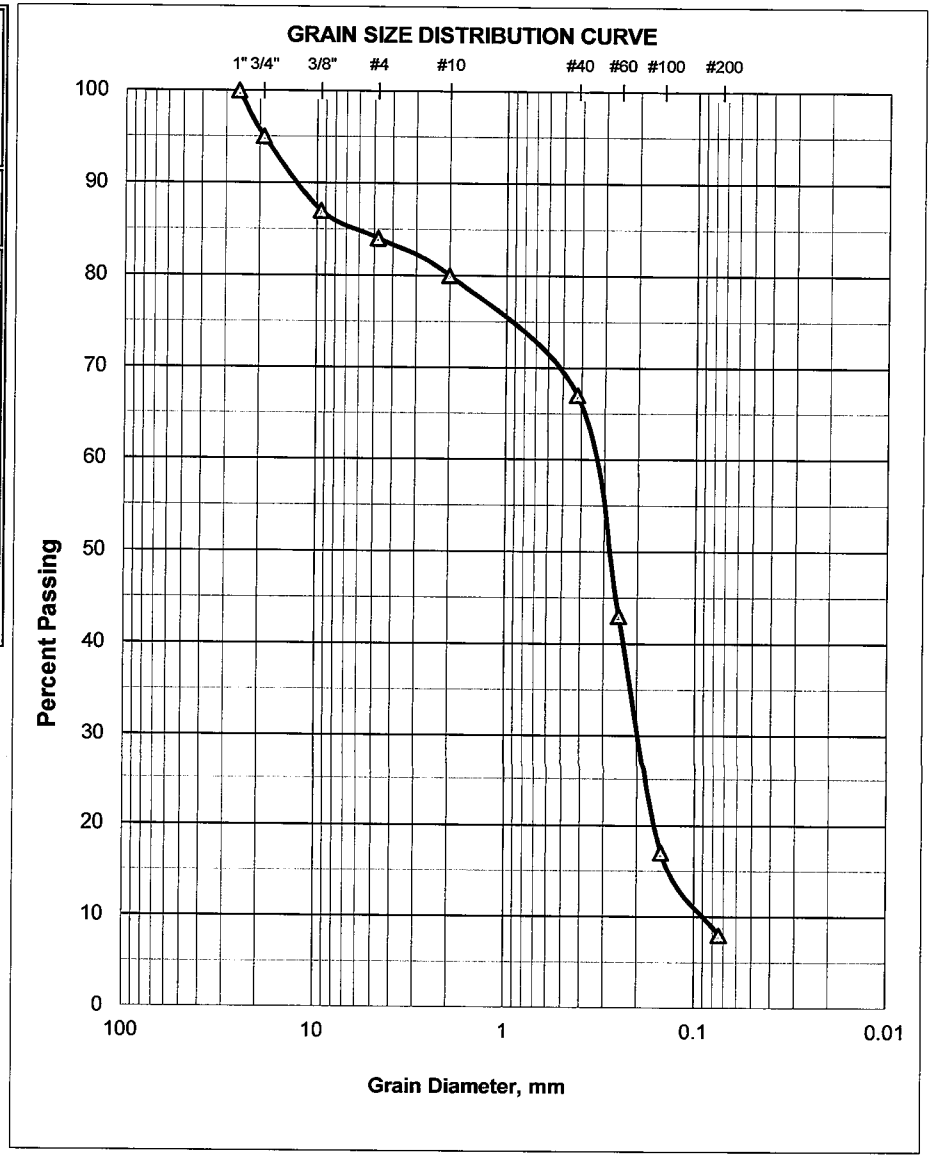
Total Dry Weight Before Wash, (gr) =	**551.70**
Percent Finer than No. 200 Sieve by Wash Method=	**8%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	16
Coarse Sand	>No. 4-≤ No. 40	17
Fine Sand	>No. 40-≤ No. 200	59
Silt and Clays	>No. 200	8
Water Content		7%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-2032CR	**Sample No.:**	1B
Depth:	0.5'-2.0'		
Date:	10/17/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	44.30	44.30	9	91	
3/8"	9.51	79.90	124.20	27	73	
4	4.76	62.10	186.30	40	60	AASHTO Classification:
10	2.00	52.40	238.70	52	48	
40	0.420	66.00	304.70	66	34	A-1-b
60	0.250	23.80	328.50	71	29	
100	0.149	39.60	368.10	80	20	
200	0.074	27.20	395.30	86	14	
PAN						

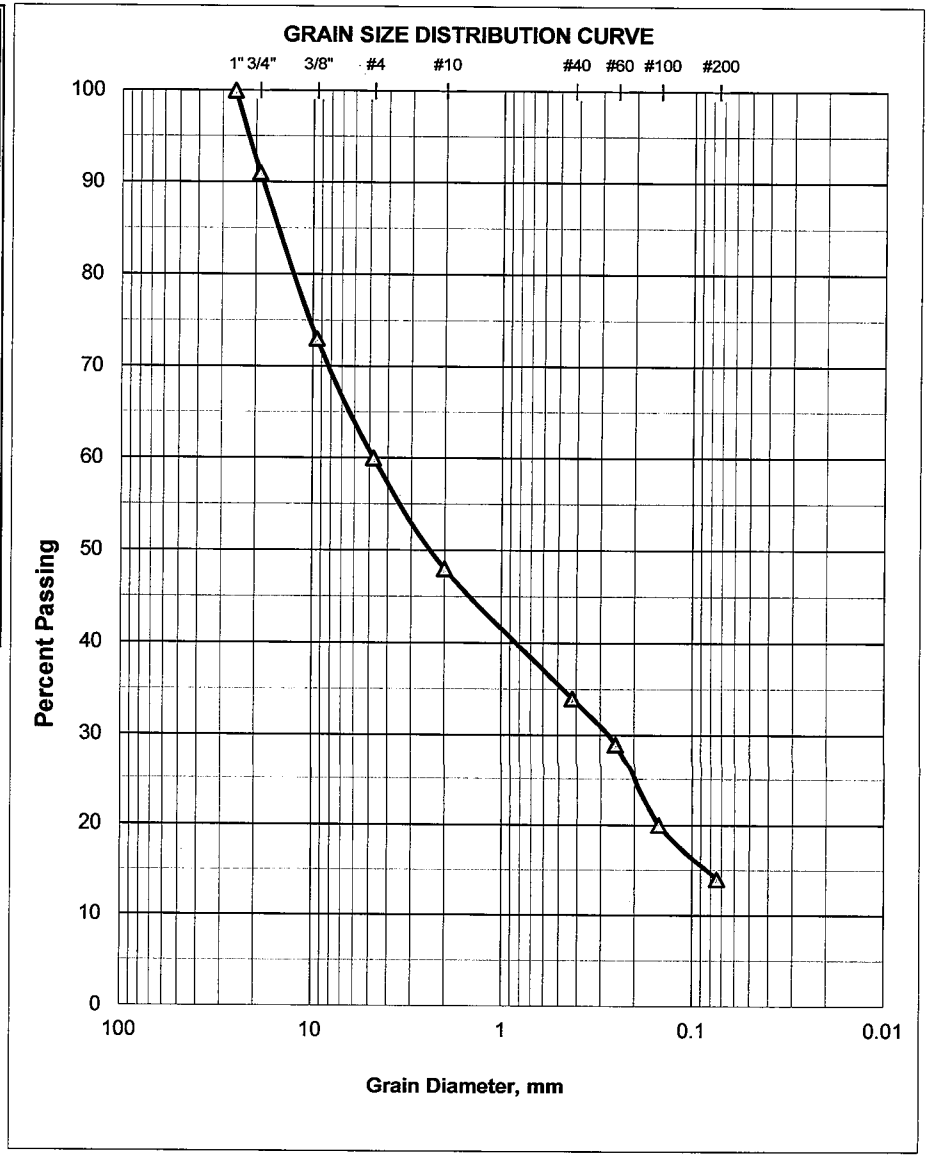
Total Dry Weight Before Wash, (gr) =	**456.90**
Percent Finer than No. 200 Sieve by Wash Method=	**14%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	40
Coarse Sand	>No. 4-≤ No. 40	26
Fine Sand	>No. 40-≤ No. 200	20
Silt and Clays	>No. 200	14
Water Content		8%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2032CR	Sample No.:	2A
Depth:	2.0'-2.8'		
Date:	10/17/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	28.20	28.20	11	89	
3/8"	9.51	35.50	63.70	24	76	
4	4.76	23.90	87.60	34	66	AASHTO Classification:
10	2.00	23.60	111.20	43	57	
40	0.420	30.30	141.50	55	45	A-1-b
60	0.250	24.10	165.60	64	36	
100	0.149	38.10	203.70	79	21	
200	0.074	21.40	225.10	88	12	
PAN						

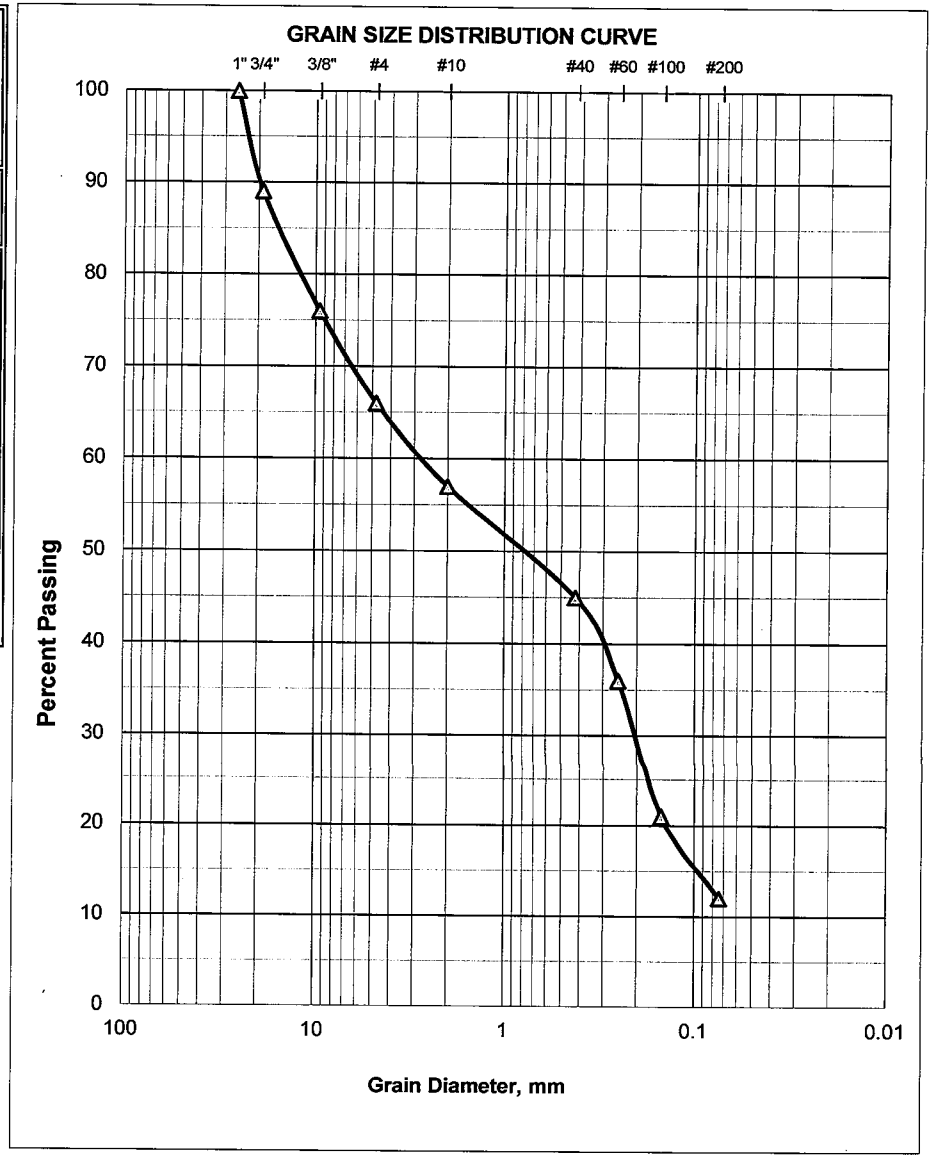
Total Dry Weight Before Wash, (gr) =	254.90
Percent Finer than No. 200 Sieve by Wash Method=	12%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	34
Coarse Sand	>No. 4-≤ No. 40	21
Fine Sand	>No. 40-≤ No. 200	33
Silt and Clays	>No. 200	12
Water Content		9%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

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Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2036CR	Sample No.:	1B
Depth:	0.5'-2.0'		
Date:	10/17/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	53.90	53.90	10	90	
3/8"	9.51	61.70	115.60	21	79	
4	4.76	60.10	175.70	33	67	AASHTO Classification:
10	2.00	71.90	247.60	46	54	
40	0.420	91.70	339.30	64	36	A-1-b
60	0.250	29.50	368.80	69	31	
100	0.149	51.30	420.10	79	21	
200	0.074	32.70	452.80	85	15	
PAN						

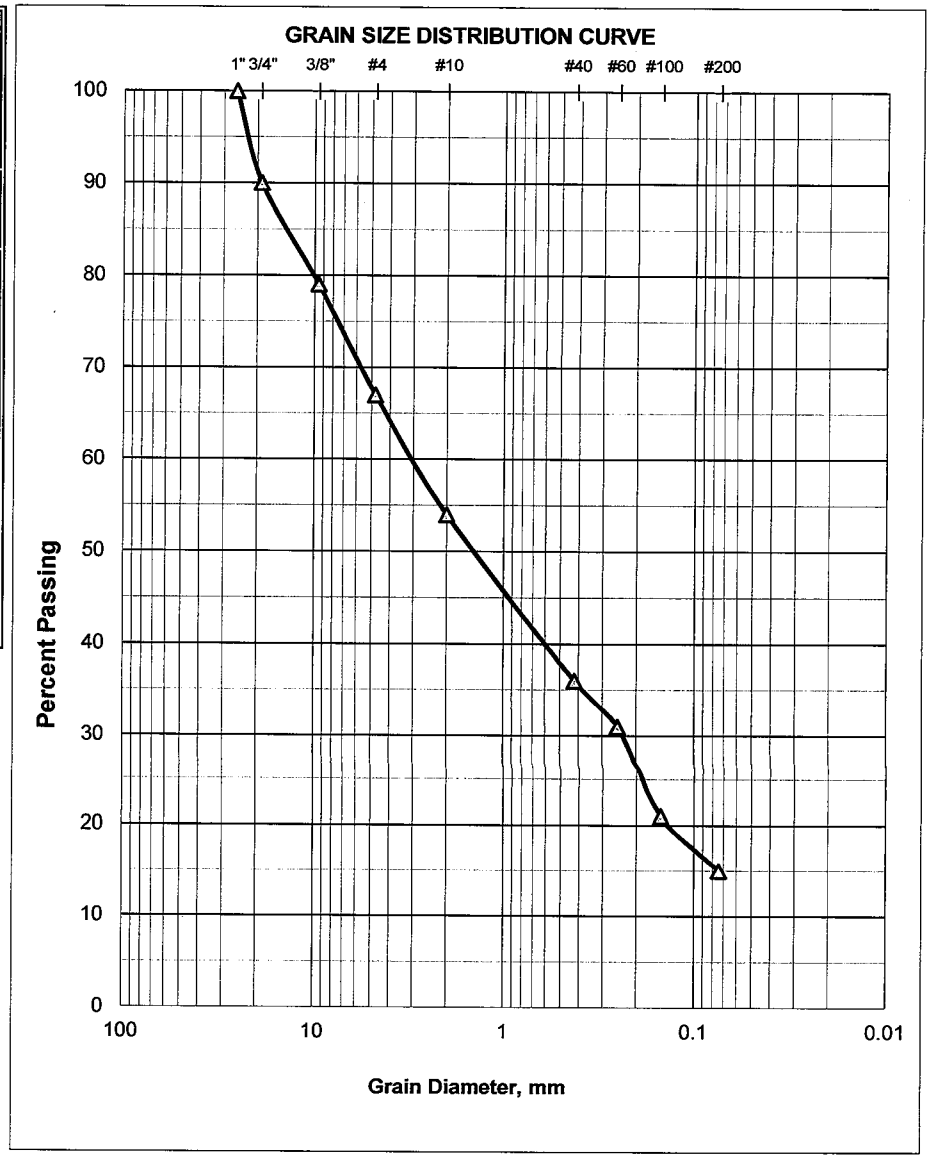
Total Dry Weight Before Wash, (gr) =	529.70
Percent Finer than No. 200 Sieve by Wash Method=	15%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	33
Coarse Sand	>No. 4-≤ No. 40	31
Fine Sand	>No. 40-≤ No. 200	21
Silt and Clays	>No. 200	15
Water Content		9%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2036CR **Sample No.:** 4 **Depth:** 6.0'-8.0'

Date: 10/10/14

Technician:	H.C.					
Date Sample Placed in Oven:	10/14/2014					
Time in / Out of Oven :	10/14/14	6:00 AM	TO	10/15/14	6:00 AM	
Wt. of Wet Soil + Can, grams	560.90					
Wt. of Dry Soil + Can, grams	460.20					
Wt. of Can, grams No. 805	8.20					
Wt. of Dry Soil, grams	452.00					
Wt. of Moisture, grams	100.70					
Water Content, w%	22%					
Date Sample Placed in Furnace:	10/16/14					
Time in / out of furnace (minimum 6 hrs):	10/16/14	5:00 AM	TO	10/16/14	11:00 AM	
Weight of Crucible & Oven-Dried Sample:	27.70					
Weight of Crucible and Sample After Ignition:	27.50					
Weight of Crucible: No. 28	15.60					
Weight of Oven-Dried Soil:	12.10					
Weight Loss due to Ignition:	0.20					
Percent Organics:	2%					

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2036CR **Sample No.:** 4 **Depth:** 6.0'-8.0'

Date: 10/10/14

Technician:	H.C.
Date Sample Placed in Oven:	10/14/2014
Time in / Out of Oven :	10/14/14 6:00 AM TO 10/15/14 6:00 AM
Wt. of Wet Soil + Can, grams	560.90
Wt. of Dry Soil + Can, grams	460.20
Wt. of Can, grams No. 805	8.20
Wt. of Dry Soil, grams	452.00
Wt. of Moisture, grams	100.70
Water Content, w%	22%
Wt. of Dry Soil + Can Before Wash, grams	443.90
Wt. of Can, grams No. 805	8.20
Wt. of Dry Soil Before Wash, grams	435.70
Time in / Out of Oven :	10/15/14 7:00 PM TO 10/16/14 7:00 PM
Wt. of Dry Soil + Can After Wash, grams	416.80
Wt. of Dry Soil After Wash, grams	408.60
Total Loss, grams	27.10
Percent Finer Than No. 200 Sieve	6%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166

Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2036L **Sample No.:** 2 **Depth:** 2.0'-4.0'

Date: 11/6/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	0.00	0.00	0	100	
4	4.76	0.00	0.00	0	100	AASHTO Classification:
10	2.00	0.10	0.10	0	100	
40	0.420	8.70	8.80	2	98	A-3
60	0.250	48.50	57.30	18	82	
100	0.149	162.80	220.10	72	28	
200	0.074	71.10	291.20	96	4	
PAN						

Total Dry Weight Before Wash, (gr) =	303.20
Percent Finer than No. 200 Sieve by Wash Method=	4%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

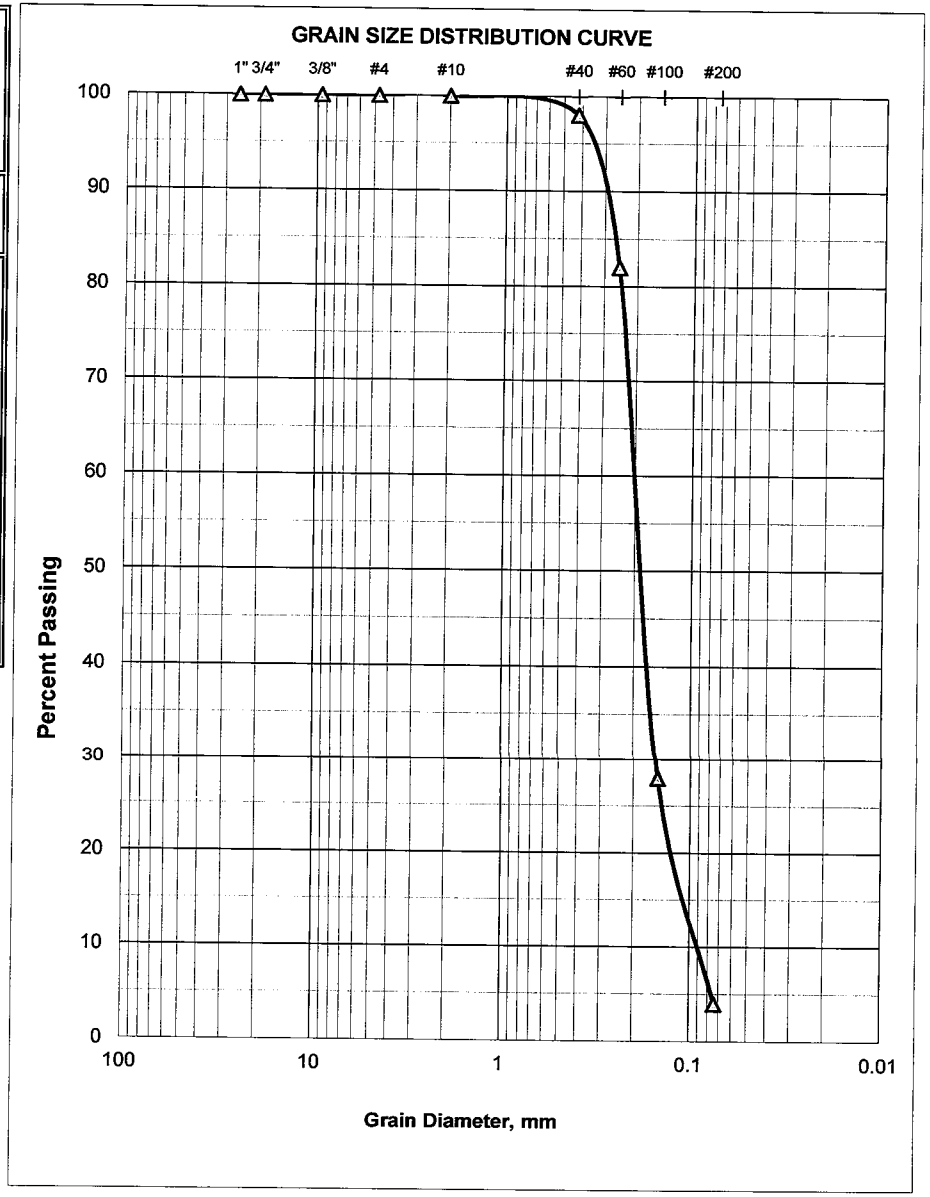
Material in Sample (%)		
Gravel	≤ No. 4	0
Coarse Sand	>No. 4-≤ No. 40	2
Fine Sand	>No. 40-≤ No. 200	94
Silt and Clays	>No. 200	4
Water Content		26%

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.

Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2036R **Sample No.:** 3 **Depth:** 4.0'-6.0'

Date: 11/03/14

Technician:	H.C.
Date Sample Placed in Oven:	11/04/2014
Time in / Out of Oven :	11/04/14 5:00 AM TO 11/05/14 5:00 AM
Wt. of Wet Soil + Can, grams	461.10
Wt. of Dry Soil + Can, grams	442.90
Wt. of Can, grams No. 702	8.40
Wt. of Dry Soil, grams	434.50
Wt. of Moisture, grams	18.20
Water Content, w%	4%
Date Sample Placed in Furnace:	11/05/14
Time in / out of furnace (minimum 6 hrs):	11/05/14 12:00 PM TO 11/05/14 6:00 PM
Weight of Crucible & Oven-Dried Sample:	31.60
Weight of Crucible and Sample After Ignition:	31.40
Weight of Crucible: No. 299	16.50
Weight of Oven-Dried Soil:	15.10
Weight Loss due to Ignition:	0.20
Percent Organics:	1%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2036R **Sample No.:** 3 **Depth:** 4.0'-6.0'

Date: 11/03/14

Technician:	H.C.
Date Sample Placed in Oven:	11/04/2014
Time in / Out of Oven :	11/04/14 5:00 AM TO 11/05/14 5:00 AM
Wt. of Wet Soil + Can, grams	461.10
Wt. of Dry Soil + Can, grams	442.90
Wt. of Can, grams No. 702	8.40
Wt. of Dry Soil, grams	434.50
Wt. of Moisture, grams	18.20
Water Content, w%	4%
Wt. of Dry Soil + Can Before Wash, grams	419.80
Wt. of Can, grams No. 702	8.40
Wt. of Dry Soil Before Wash, grams	411.40
Time in / Out of Oven :	11/05/14 7:00 PM TO 11/06/14 7:00 PM
Wt. of Dry Soil + Can After Wash, grams	405.90
Wt. of Dry Soil After Wash, grams	397.50
Total Loss, grams	13.90
Percent Finer Than No. 200 Sieve	3%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2038R **Sample No.:** 1B **Depth:** 1.0'-2.0'

Date: 11/03/14

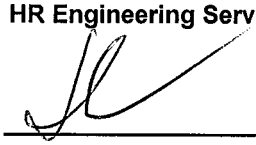
Technician:	H.C.
Date Sample Placed in Oven:	11/04/2014
Time in / Out of Oven :	11/04/14 5:00 AM TO 11/05/14 5:00 AM
Wt. of Wet Soil + Can, grams	265.40
Wt. of Dry Soil + Can, grams	264.00
Wt. of Can, grams No. 703	9.20
Wt. of Dry Soil, grams	254.80
Wt. of Moisture, grams	1.40
Water Content, w%	1%
Date Sample Placed in Furnace:	11/05/14
Time in / out of furnace (minimum 6 hrs):	11/05/14 12:00 PM TO 11/05/14 6:00 PM
Weight of Crucible & Oven-Dried Sample:	27.20
Weight of Crucible and Sample After Ignition:	26.90
Weight of Crucible: No. 54	15.10
Weight of Oven-Dried Soil:	12.10
Weight Loss due to Ignition:	0.30
Percent Organics:	2%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.



Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2038R **Sample No.:** 1B **Depth:** 1.0'-2.0'

Date: 11/03/14

Technician:	H.C.
Date Sample Placed in Oven:	11/04/2014
Time in / Out of Oven :	11/04/14 5:00 AM TO 11/05/14 5:00 AM
Wt. of Wet Soil + Can, grams	265.40
Wt. of Dry Soil + Can, grams	264.00
Wt. of Can, grams No. 703	9.20
Wt. of Dry Soil, grams	254.80
Wt. of Moisture, grams	1.40
Water Content, w%	1%
Wt. of Dry Soil + Can Before Wash, grams	252.50
Wt. of Can, grams No. 703	9.20
Wt. of Dry Soil Before Wash, grams	243.30
Time in / Out of Oven :	11/05/14 4:00 PM TO 11/06/14 4:00 PM
Wt. of Dry Soil + Can After Wash, grams	233.50
Wt. of Dry Soil After Wash, grams	224.30
Total Loss, grams	19.00
Percent Finer Than No. 200 Sieve	8%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2040CL	Sample No.:	1B
Depth:	0.5'-2.0'		
Date:	10/17/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	35.60	35.60	8	92	
3/8"	9.51	23.70	59.30	13	87	AASHTO Classification:
4	4.76	35.80	95.10	21	79	
10	2.00	20.10	115.20	25	75	
40	0.420	68.70	183.90	41	59	A-3
60	0.250	89.30	273.20	61	39	
100	0.149	96.30	369.50	83	17	
200	0.074	31.10	400.60	90	10	
PAN						

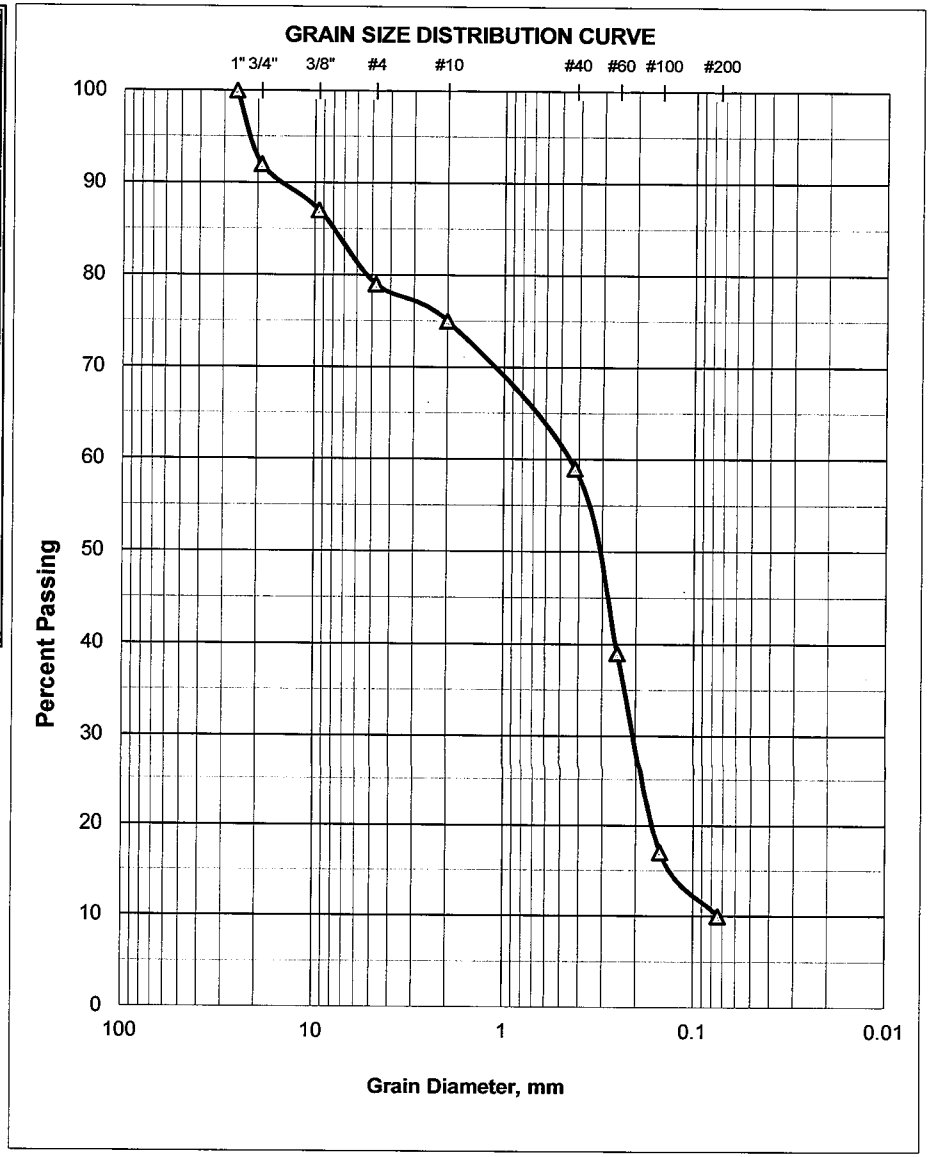
Total Dry Weight Before Wash, (gr) =	444.80
Percent Finer than No. 200 Sieve by Wash Method=	10%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	21
Coarse Sand	>No. 4-≤ No. 40	20
Fine Sand	>No. 40-≤ No. 200	49
Silt and Clays	>No. 200	10
Water Content		7%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2040CL	Sample No.: 2	Depth: 2.0'-4.0'
Date:	10/17/2014		Tested By: H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	33.40	33.40	7	93	
3/8"	9.51	7.50	40.90	9	91	AASHTO Classification:
4	4.76	3.20	44.10	10	90	
10	2.00	3.70	47.80	11	89	
40	0.420	72.20	120.00	27	73	A-3
60	0.250	150.50	270.50	63	37	
100	0.149	105.90	376.40	87	13	
200	0.074	37.90	414.30	96	4	
PAN						

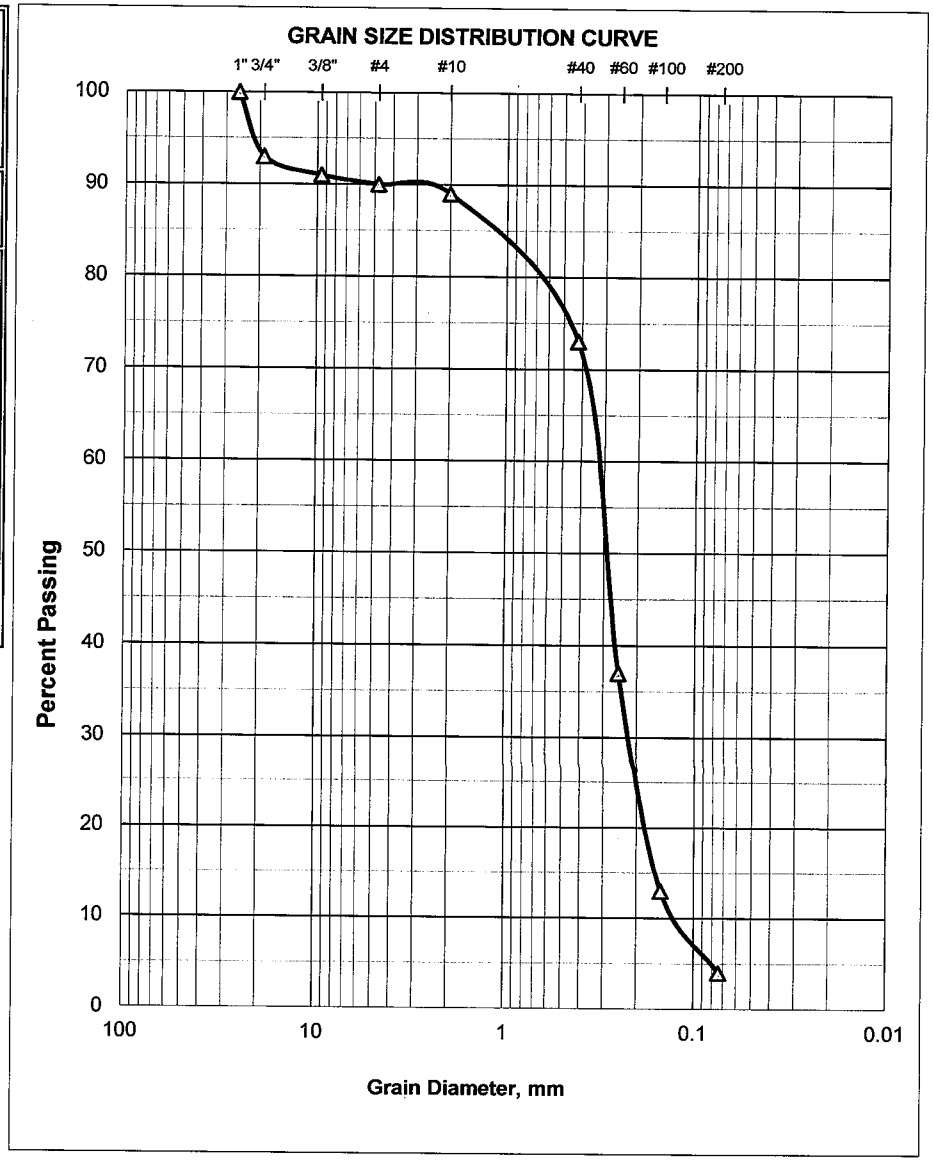
Total Dry Weight Before Wash, (gr) =	429.20
Percent Finer than No. 200 Sieve by Wash Method=	4%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	10
Coarse Sand	>No. 4-≤ No. 40	17
Fine Sand	>No. 40-≤ No. 200	69
Silt and Clays	>No. 200	4
Water Content		6%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2040CL **Sample No.:** 5A **Depth:** 8.0'-9.0'

Date: 10/10/14

Technician:	H.C.
Date Sample Placed in Oven:	10/14/2014
Time in / Out of Oven :	10/14/14 6:00 AM TO 10/15/14 6:00 AM
Wt. of Wet Soil + Can, grams	525.70
Wt. of Dry Soil + Can, grams	417.60
Wt. of Can, grams No. 808	8.90
Wt. of Dry Soil, grams	408.70
Wt. of Moisture, grams	108.10
Water Content, w%	26%
Wt. of Dry Soil + Can Before Wash, grams	417.60
Wt. of Can, grams No. 808	8.90
Wt. of Dry Soil Before Wash, grams	408.70
Time in / Out of Oven :	10/15/14 7:00 PM TO 10/16/14 7:00 PM
Wt. of Dry Soil + Can After Wash, grams	358.10
Wt. of Dry Soil After Wash, grams	349.20
Total Loss, grams	59.50
Percent Finer Than No. 200 Sieve	15%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-2-4

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2040R **Sample No.:** 1B **Depth:** 1.0'-2.0'

Date: 10/10/14

Technician:			H.C.			
Date Sample Placed in Oven:			10/14/2014			
Time in / Out of Oven :			10/14/14	6:00 AM	TO 10/15/14	6:00 AM
Wt. of Wet Soil + Can, grams			372.80			
Wt. of Dry Soil + Can, grams			368.20			
Wt. of Can, grams	**No.**	**809**	8.90			
Wt. of Dry Soil, grams			359.30			
Wt. of Moisture, grams			4.60			
Water Content, w%			1%			
Wt. of Dry Soil + Can Before Wash, grams			368.20			
Wt. of Can, grams	**No.**	**809**	8.90			
Wt. of Dry Soil Before Wash, grams			359.30			
Time in / Out of Oven :			10/16/14	7:00 AM	TO 10/17/14	7:00 AM
Wt. of Dry Soil + Can After Wash, grams			354.60			
Wt. of Dry Soil After Wash, grams			345.70			
Total Loss, grams			13.60			
Percent Finer Than No. 200 Sieve			4%			

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2040R **Sample No.:** 2A **Depth:** 2.0'-3.0'

Date: 10/10/14

Technician:	H.C.				
Date Sample Placed in Oven:	10/14/2014				
Time in / Out of Oven :	10/14/14	6:00 AM	TO	10/15/14	6:00 AM
Wt. of Wet Soil + Can, grams	296.50				
Wt. of Dry Soil + Can, grams	287.60				
Wt. of Can, grams No. 810	8.30				
Wt. of Dry Soil, grams	279.30				
Wt. of Moisture, grams	8.90				
Water Content, w%	3%				
Wt. of Dry Soil + Can Before Wash, grams	287.60				
Wt. of Can, grams No. 810	8.30				
Wt. of Dry Soil Before Wash, grams	279.30				
Time in / Out of Oven :	10/16/14	7:00 AM	TO	10/17/14	7:00 AM
Wt. of Dry Soil + Can After Wash, grams	277.20				
Wt. of Dry Soil After Wash, grams	268.90				
Total Loss, grams	10.40				
Percent Finer Than No. 200 Sieve	4%				

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R
Boring No.: RB-2042CL **Sample No.:** 2 **Depth:** 2.0'-4.0'
Date: 11/6/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	21.50	21.50	3	97	
4	4.76	7.90	29.40	5	95	AASHTO Classification:
10	2.00	4.50	33.90	6	94	
40	0.420	58.20	92.10	16	84	A-3
60	0.250	185.50	277.60	50	50	
100	0.149	175.60	453.20	82	18	
200	0.074	69.90	523.10	95	5	
PAN						

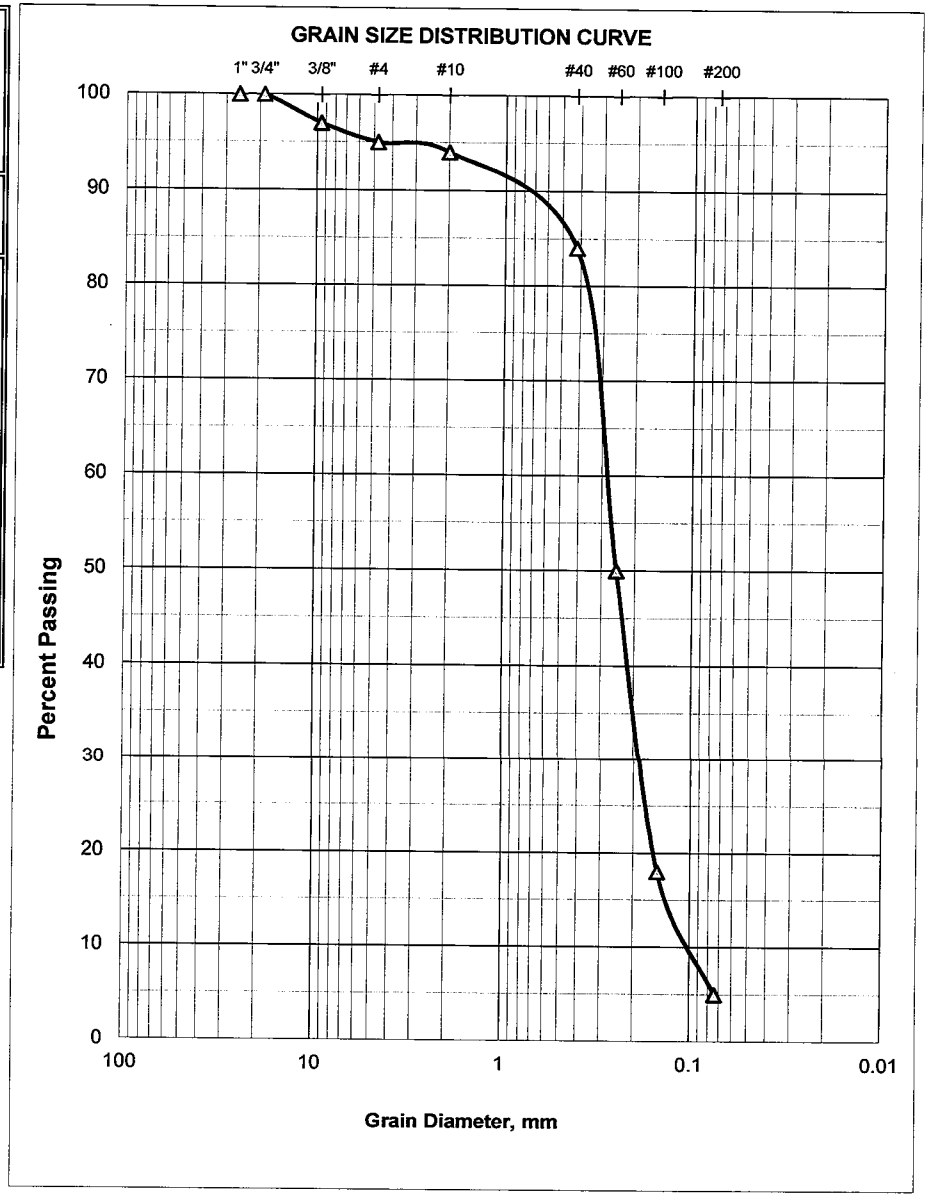
Total Dry Weight Before Wash, (gr) =	547.70
Percent Finer than No. 200 Sieve by Wash Method=	5%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	5
Coarse Sand	>No. 4-≤ No. 40	11
Fine Sand	>No. 40-≤ No. 200	79
Silt and Clays	>No. 200	5
Water Content		6%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-2042CR	**Sample No.:**	1B
Depth:	0.5'-1.5'		
Date:	10/17/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	73.80	73.80	23	77	
3/8"	9.51	23.30	97.10	30	70	
4	4.76	26.20	123.30	39	61	AASHTO Classification:
10	2.00	27.20	150.50	47	53	
40	0.420	49.90	200.40	63	37	A-1-b
60	0.250	31.90	232.30	74	26	
100	0.149	26.60	258.90	82	18	
200	0.074	16.80	275.70	87	13	
PAN						

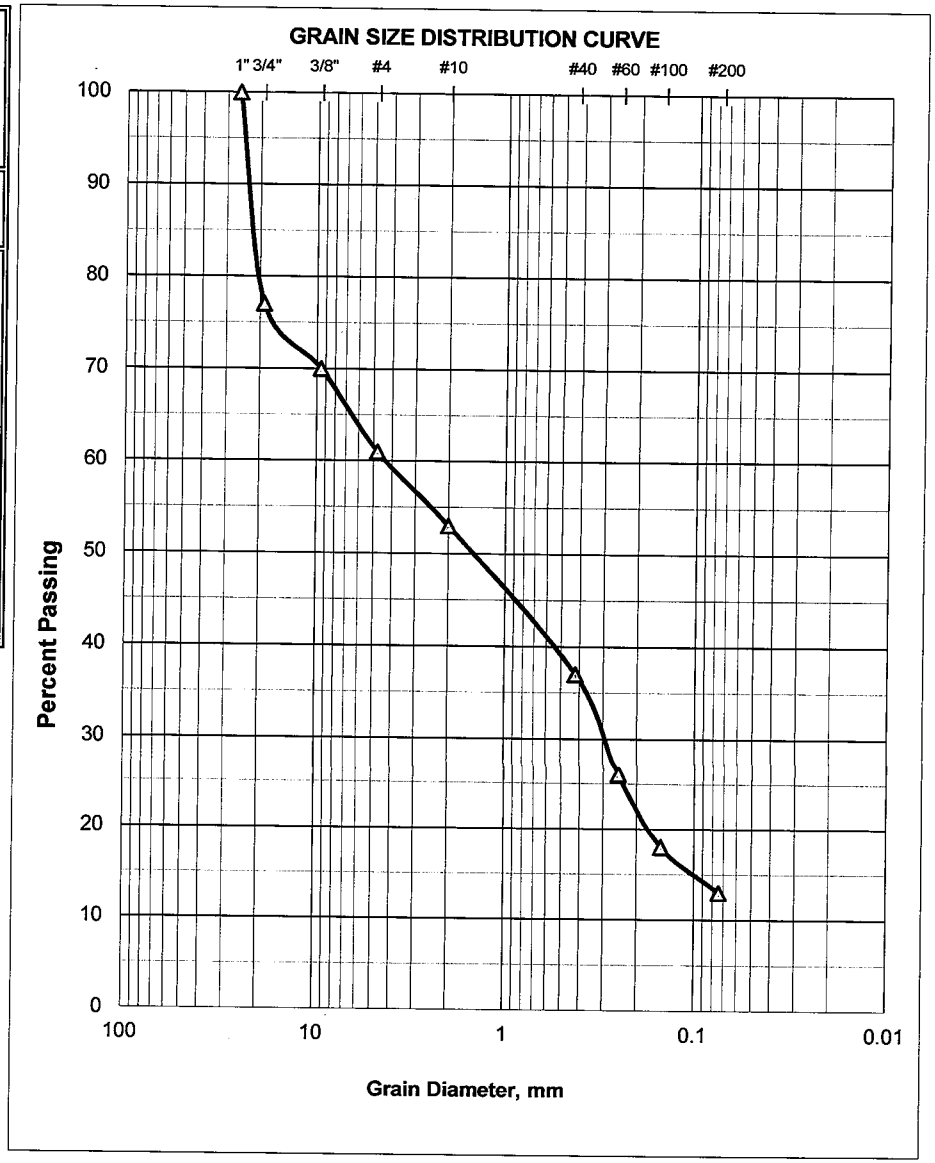
Total Dry Weight Before Wash, (gr) =	**313.90**
Percent Finer than No. 200 Sieve by Wash Method=	**13%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	39
Coarse Sand	>No. 4-≤ No. 40	24
Fine Sand	>No. 40-≤ No. 200	24
Silt and Clays	>No. 200	13
Water Content		6%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2046CL **Sample No.:** 3 **Depth:** 4.0'-6.0'

Date: 11/6/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	3.20	3.20	0	100	
4	4.76	1.50	4.70	1	99	AASHTO Classification:
10	2.00	1.40	6.10	1	99	
40	0.420	15.40	21.50	4	96	A-3
60	0.250	67.30	88.80	19	81	
100	0.149	196.60	285.40	63	37	
200	0.074	133.10	418.50	93	7	
PAN						

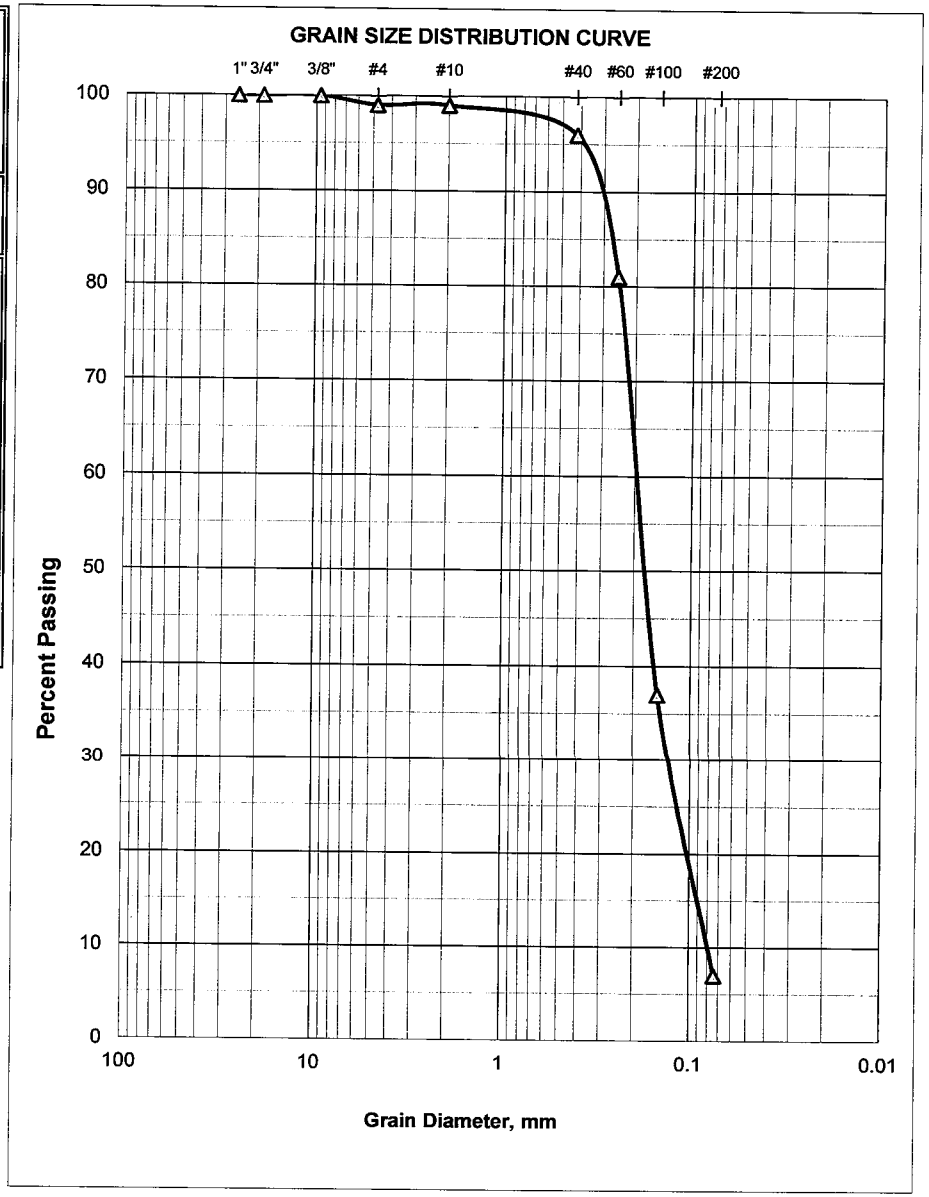
Total Dry Weight Before Wash, (gr) =	448.70
Percent Finer than No. 200 Sieve by Wash Method=	7%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	1
Coarse Sand	>No. 4-≤ No. 40	3
Fine Sand	>No. 40-≤ No. 200	89
Silt and Clays	>No. 200	7
Water Content		25%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



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7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2046CR **Sample No.:** 3B **Depth:** 5.5'-6.0'

Date: 10/10/14

Technician:	H.C.
Date Sample Placed in Oven:	10/14/2014
Time in / Out of Oven :	10/14/14 6:00 AM TO 10/15/14 6:00 AM
Wt. of Wet Soil + Can, grams	84.70
Wt. of Dry Soil + Can, grams	64.10
Wt. of Can, grams No. 812	8.90
Wt. of Dry Soil, grams	55.20
Wt. of Moisture, grams	20.60
Water Content, w%	37%
Wt. of Dry Soil + Can Before Wash, grams	64.10
Wt. of Can, grams No. 812	8.90
Wt. of Dry Soil Before Wash, grams	55.20
Time in / Out of Oven :	10/16/14 7:00 AM TO 10/17/14 7:00 AM
Wt. of Dry Soil + Can After Wash, grams	48.30
Wt. of Dry Soil After Wash, grams	39.40
Total Loss, grams	15.80
Percent Finer Than No. 200 Sieve	29%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-2-4

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2046CR **Sample No.:** 4A **Depth:** 6.0'-7.0'

Date: 10/10/14

Technician:			H.C.			
Date Sample Placed in Oven:			10/14/2014			
Time in / Out of Oven :			10/14/14	6:00 AM	TO	10/15/14 6:00 AM
Wt. of Wet Soil + Can, grams			328.80			
Wt. of Dry Soil + Can, grams			225.10			
Wt. of Can, grams	**No.**	**813**	8.90			
Wt. of Dry Soil, grams			216.20			
Wt. of Moisture, grams			103.70			
Water Content, w%			48%			
Wt. of Dry Soil + Can Before Wash, grams			225.10			
Wt. of Can, grams	**No.**	**813**	8.90			
Wt. of Dry Soil Before Wash, grams			216.20			
Time in / Out of Oven :			10/16/14	7:00 AM	TO	10/17/14 7:00 AM
Wt. of Dry Soil + Can After Wash, grams			102.90			
Wt. of Dry Soil After Wash, grams			94.00			
Total Loss, grams			122.20			
Percent Finer Than No. 200 Sieve			57%			

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-4

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2050CL	Sample No.:	1B
Depth:	0.5'-1.5'		
Date:	10/17/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	10.30	10.30	5	95	
3/8"	9.51	17.80	28.10	14	86	AASHTO Classification:
4	4.76	24.70	52.80	27	73	
10	2.00	24.70	77.50	41	59	
40	0.420	29.80	107.30	56	44	A-1-b
60	0.250	15.60	122.90	65	35	
100	0.149	24.60	147.50	78	22	
200	0.074	14.40	161.90	85	15	
PAN						

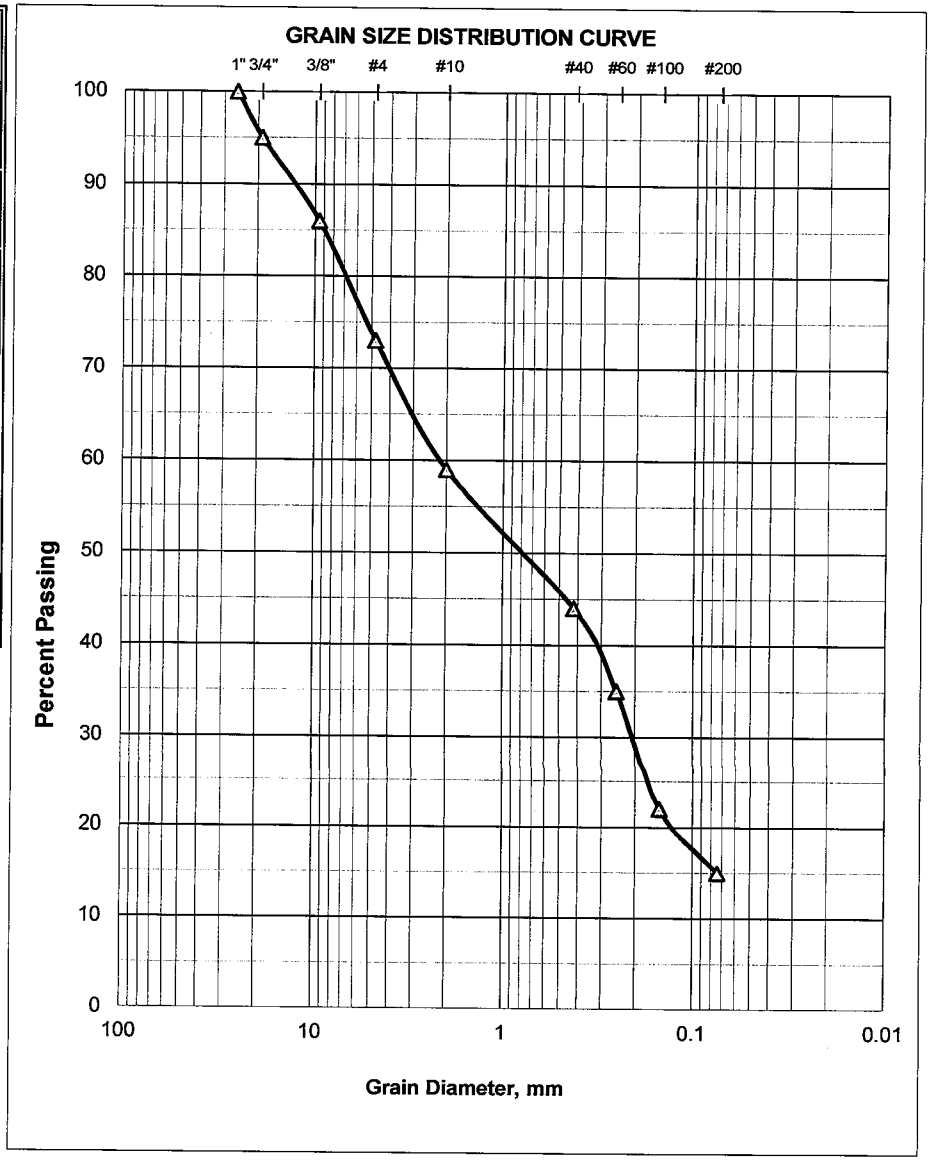
Total Dry Weight Before Wash, (gr) =	189.00
Percent Finer than No. 200 Sieve by Wash Method=	15%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	27
Coarse Sand	>No. 4-≤ No. 40	29
Fine Sand	>No. 40-≤ No. 200	29
Silt and Clays	>No. 200	15
Water Content		5%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-2050CR	**Sample No.:**	1B
Depth:	0.5'-2.0'		
Date:	10/17/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	30.10	30.10	6	94	
3/8"	9.51	32.50	62.60	13	87	
4	4.76	40.50	103.10	22	78	AASHTO Classification:
10	2.00	24.60	127.70	28	72	
40	0.420	55.50	183.20	40	60	A-3
60	0.250	89.10	272.30	59	41	
100	0.149	108.60	380.90	83	17	
200	0.074	29.60	410.50	90	10	
PAN						

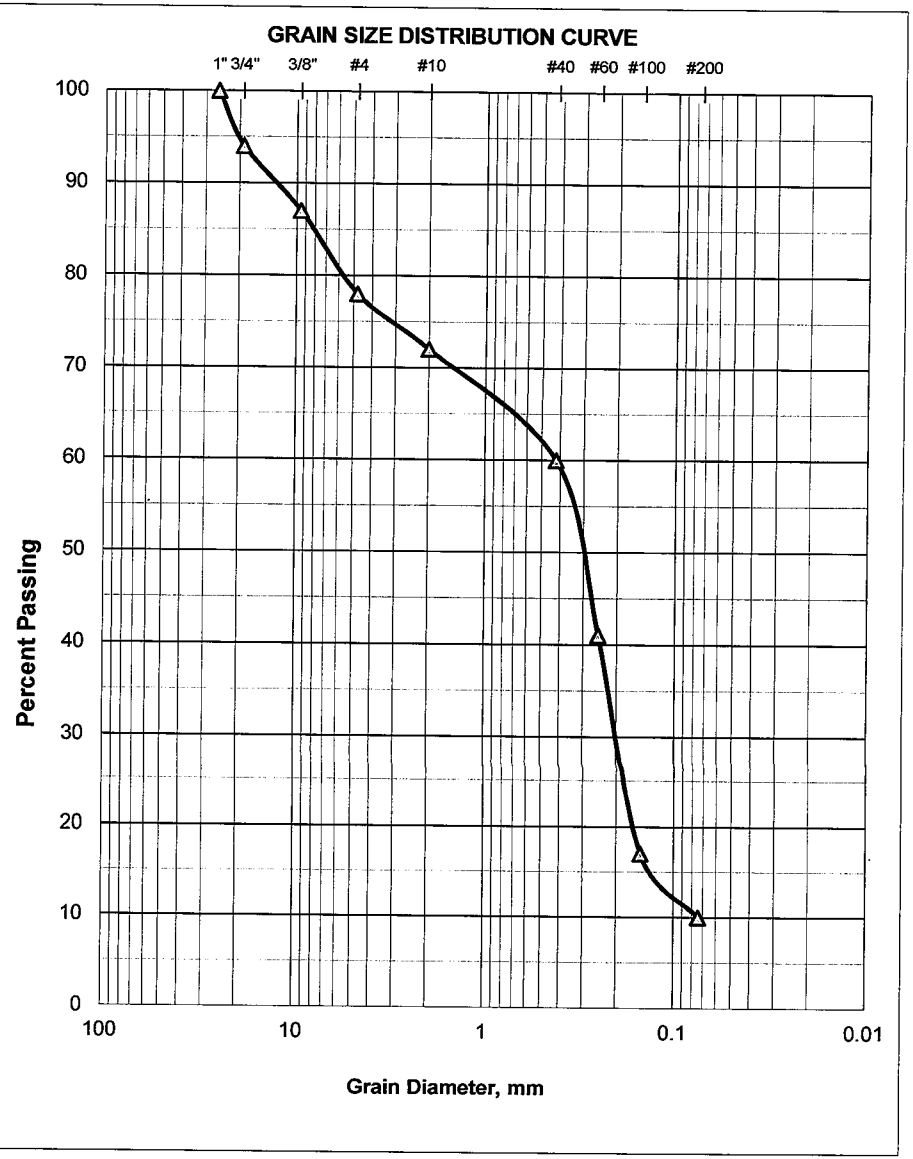
Total Dry Weight Before Wash, (gr) =	**455.80**
Percent Finer than No. 200 Sieve by Wash Method=	**10%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	22
Coarse Sand	>No. 4-≤ No. 40	18
Fine Sand	>No. 40-≤ No. 200	50
Silt and Clays	>No. 200	10
Water Content		8%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2058R	Sample No.:	1B
Depth:	0.5'-2.0'		
Date:	10/17/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	15.40	15.40	24	76	
3/8"	9.51	1.20	16.60	26	74	AASHTO Classification:
4	4.76	5.70	22.30	35	65	
10	2.00	4.80	27.10	43	57	
40	0.420	7.20	34.30	55	45	A-1-b
60	0.250	7.40	41.70	67	33	
100	0.149	9.40	51.10	82	18	
200	0.074	5.20	56.30	90	10	
PAN						

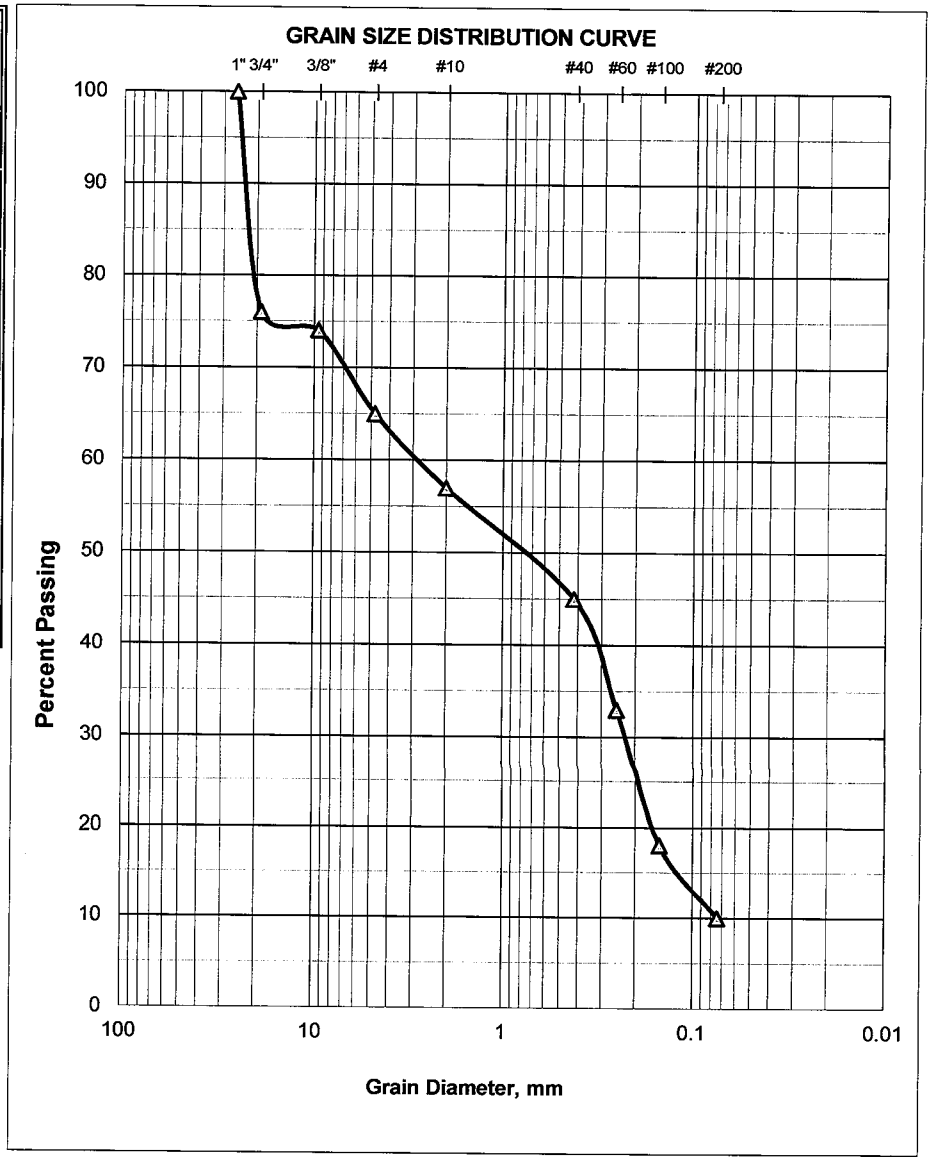
Total Dry Weight Before Wash, (gr) =	62.20
Percent Finer than No. 200 Sieve by Wash Method=	10%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	35
Coarse Sand	>No. 4-≤ No. 40	20
Fine Sand	>No. 40-≤ No. 200	35
Silt and Clays	>No. 200	10
Water Content		5%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-2058R	**Sample No.:**	2
Depth:	2.0'-4.0'		
Date:	10/17/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	15.40	15.40	4	96	
4	4.76	33.40	48.80	12	88	AASHTO Classification:
10	2.00	33.30	82.10	21	79	
40	0.420	52.90	135.00	35	65	A-2-4
60	0.250	42.30	177.30	47	53	
100	0.149	67.20	244.50	64	36	
200	0.074	48.60	293.10	77	23	
PAN						

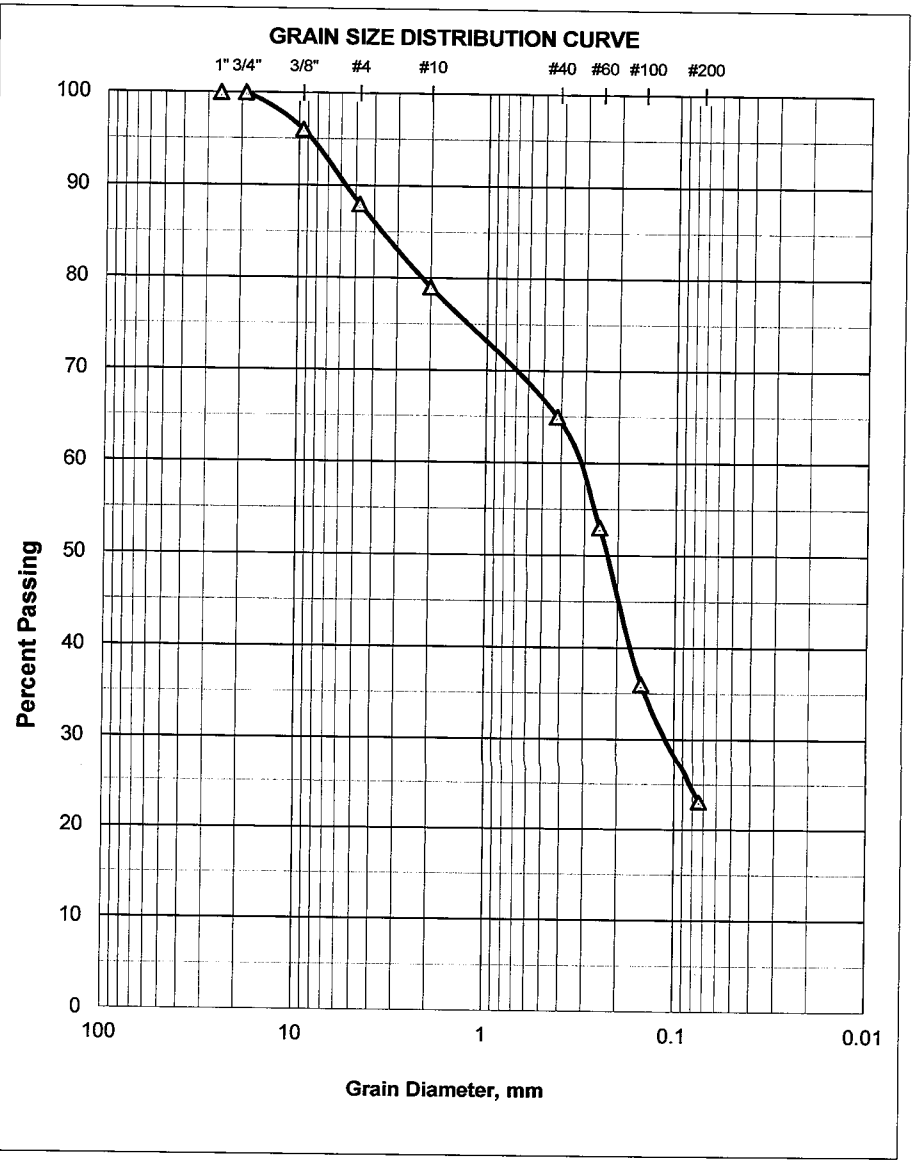
Total Dry Weight Before Wash, (gr) =	**376.60**
Percent Finer than No. 200 Sieve by Wash Method=	**23%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	12
Coarse Sand	>No. 4-≤ No. 40	23
Fine Sand	>No. 40-≤ No. 200	42
Silt and Clays	>No. 200	23
Water Content		3%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	Project No.:	HR12-891R
Boring No.:	RB-2058R	Sample No.:	3
Depth:	4.0'-6.0'		
Date:	10/17/2014	Tested By:	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	69.80	69.80	15	85	
3/8"	9.51	34.70	104.50	23	77	
4	4.76	38.40	142.90	32	68	AASHTO Classification:
10	2.00	46.70	189.60	42	58	
40	0.420	59.90	249.50	55	45	A-1-b
60	0.250	38.20	287.70	64	36	
100	0.149	69.80	357.50	80	20	
200	0.074	49.70	407.20	91	9	
PAN						

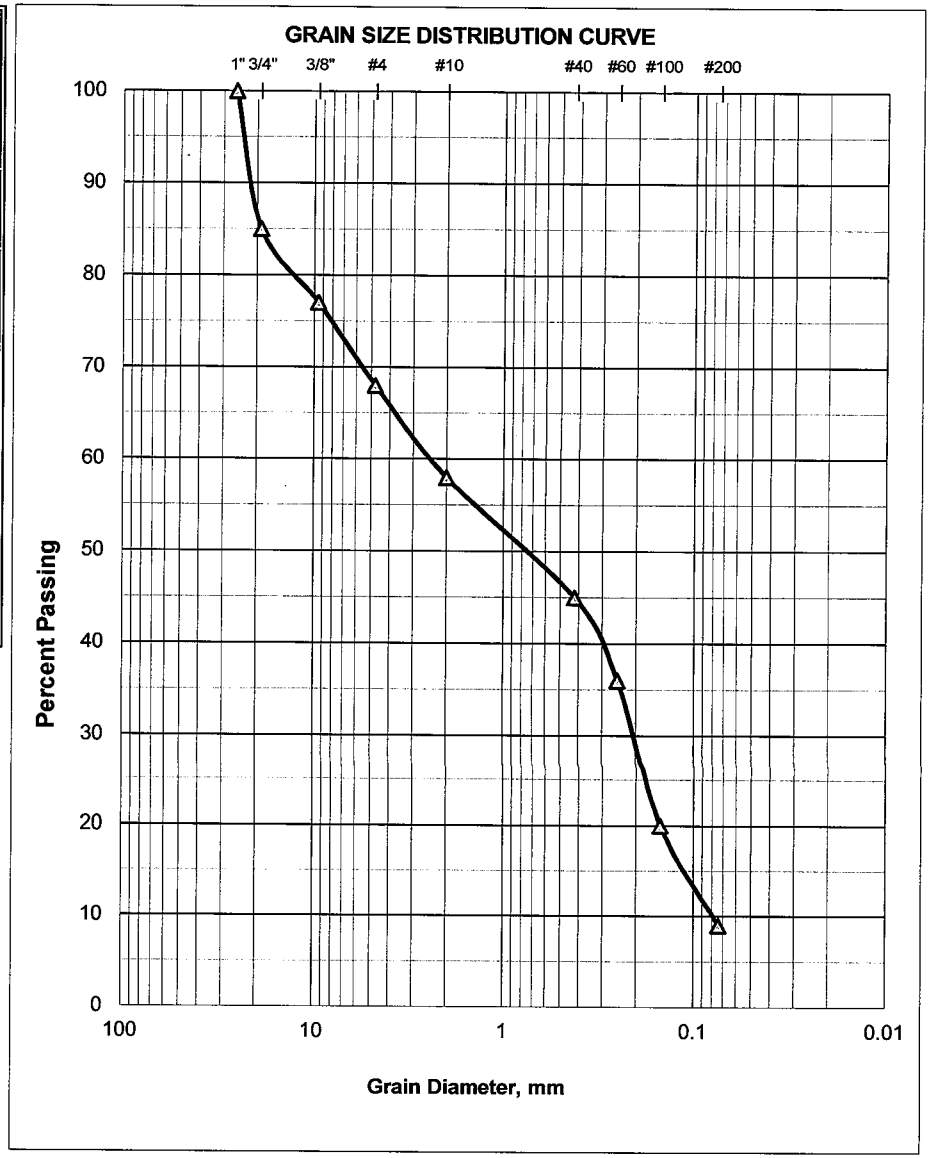
Total Dry Weight Before Wash, (gr) =	446.50
Percent Finer than No. 200 Sieve by Wash Method=	9%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	32
Coarse Sand	>No. 4-≤ No. 40	23
Fine Sand	>No. 40-≤ No. 200	36
Silt and Clays	>No. 200	9
Water Content		4%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



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GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-2062CR	**Sample No.:**	1B
Depth:	0.3'-2.0'		
Date:	10/17/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	62.10	62.10	11	89	
3/8"	9.51	54.50	116.60	21	79	AASHTO Classification:
4	4.76	54.50	171.10	31	69	
10	2.00	65.10	236.20	43	57	
40	0.420	93.90	330.10	60	40	A-1-b
60	0.250	29.20	359.30	66	34	
100	0.149	46.80	406.10	74	26	
200	0.074	35.20	441.30	81	19	
PAN						

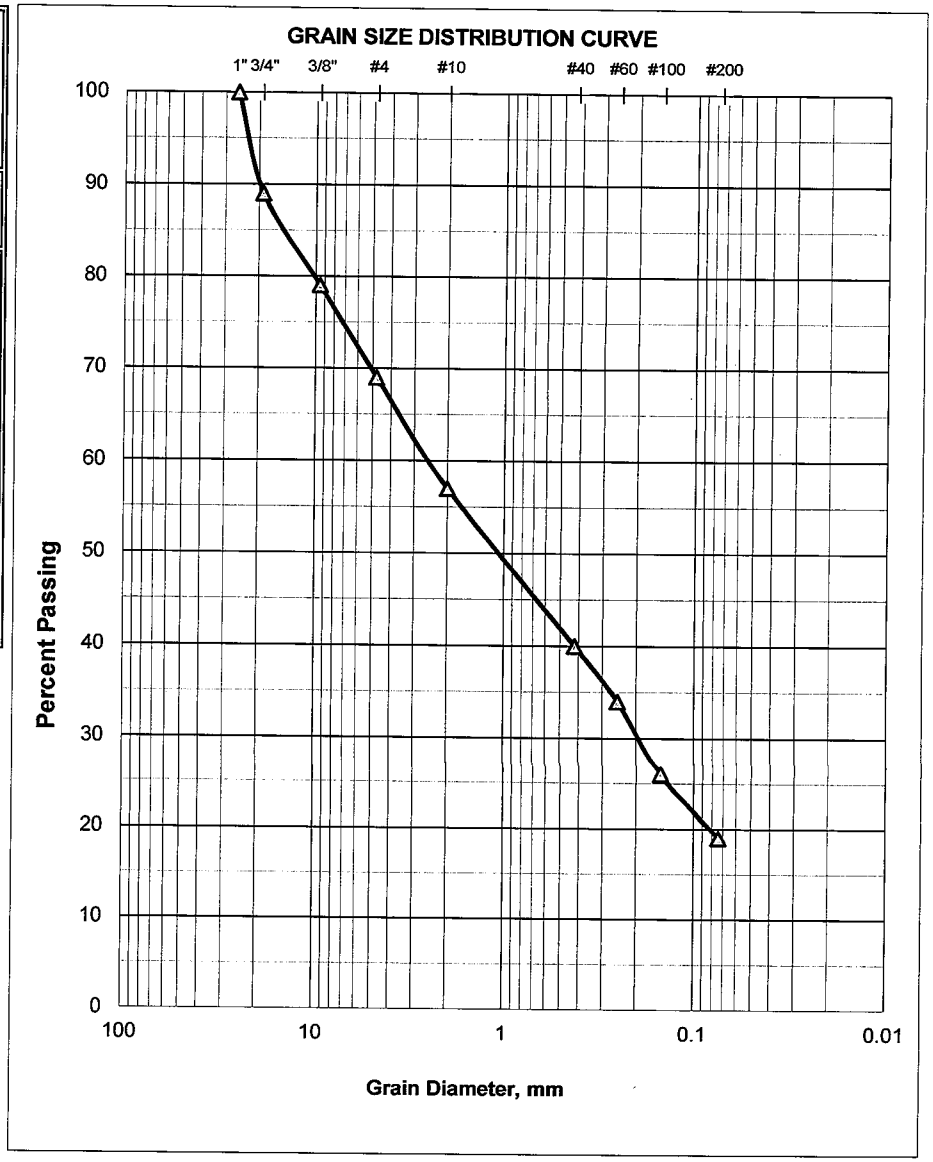
Total Dry Weight Before Wash, (gr) =	**542.00**
Percent Finer than No. 200 Sieve by Wash Method=	**19%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	31
Coarse Sand	>No. 4-≤ No. 40	29
Fine Sand	>No. 40-≤ No. 200	21
Silt and Clays	>No. 200	19
Water Content		10%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



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GRAIN SIZE DATA SHEET

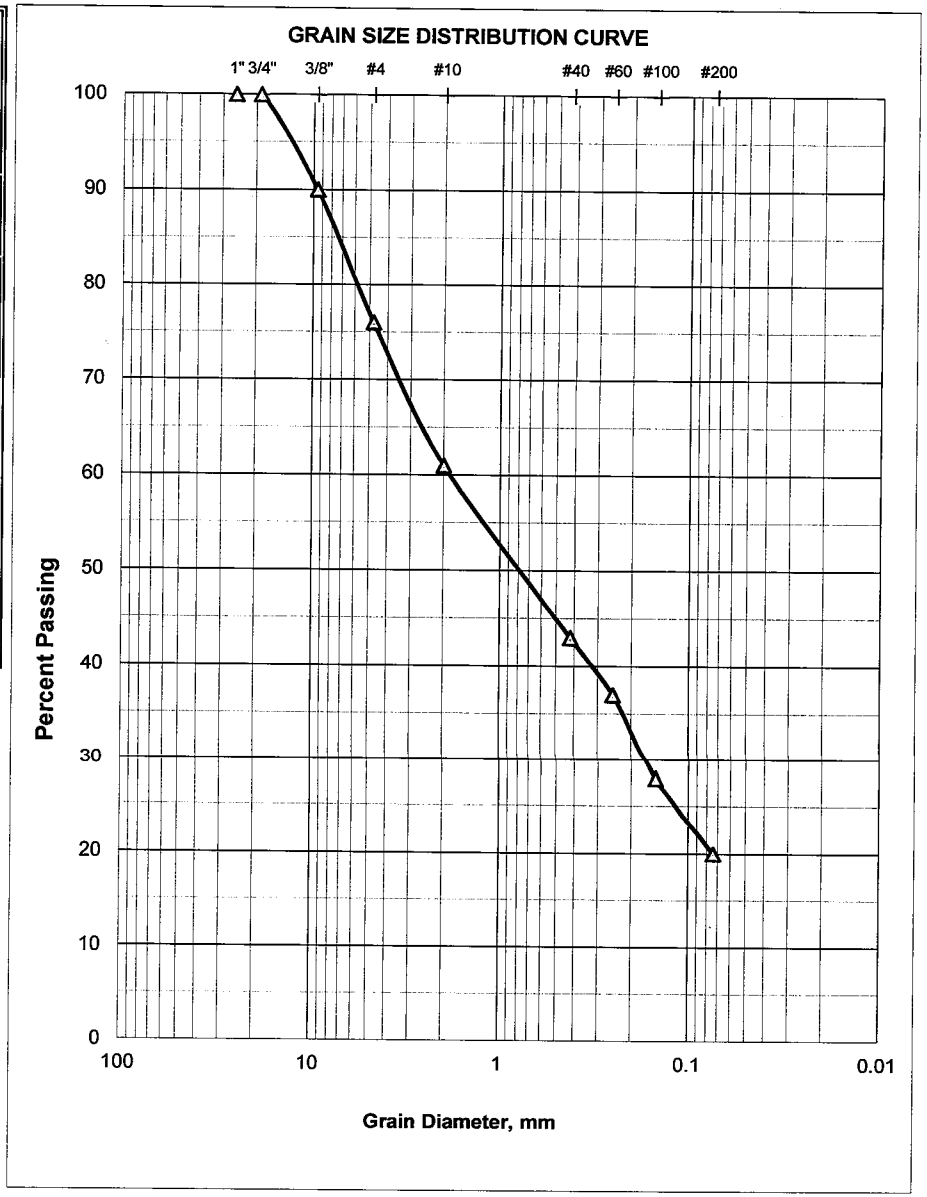
Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	RB-2066CL	**Sample No.:**	3
Depth:	0.5'-2.0'		
Date:	11/6/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	61.50	61.50	10	90	
4	4.76	77.30	138.80	24	76	AASHTO Classification:
10	2.00	81.40	220.20	39	61	
40	0.420	103.90	324.10	57	43	A-1-b
60	0.250	31.10	355.20	63	37	
100	0.149	54.10	409.30	72	28	
200	0.074	42.80	452.10	80	20	
PAN						

Total Dry Weight Before Wash, (gr) =	561.50
Percent Finer than No. 200 Sieve by Wash Method=	20%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	24
Coarse Sand	>No. 4-≤ No. 40	33
Fine Sand	>No. 40-≤ No. 200	23
Silt and Clays	>No. 200	20
Water Content		25%



Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166

Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1			**Project No.:**	HR12-891R
Boring No.:	RB-2084L	**Sample No.:**	1B	**Depth:**	1.5'-2.0'
Date:	11/6/2014			**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	5.70	5.70	1	99	
4	4.76	3.10	8.80	2	98	AASHTO Classification:
10	2.00	3.30	12.10	3	97	
40	0.420	23.10	35.20	9	91	A-3
60	0.250	70.70	105.90	28	72	
100	0.149	178.20	284.10	75	25	
200	0.074	71.90	356.00	94	6	
PAN						

Total Dry Weight Before Wash, (gr) =	376.30
Percent Finer than No. 200 Sieve by Wash Method=	6%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

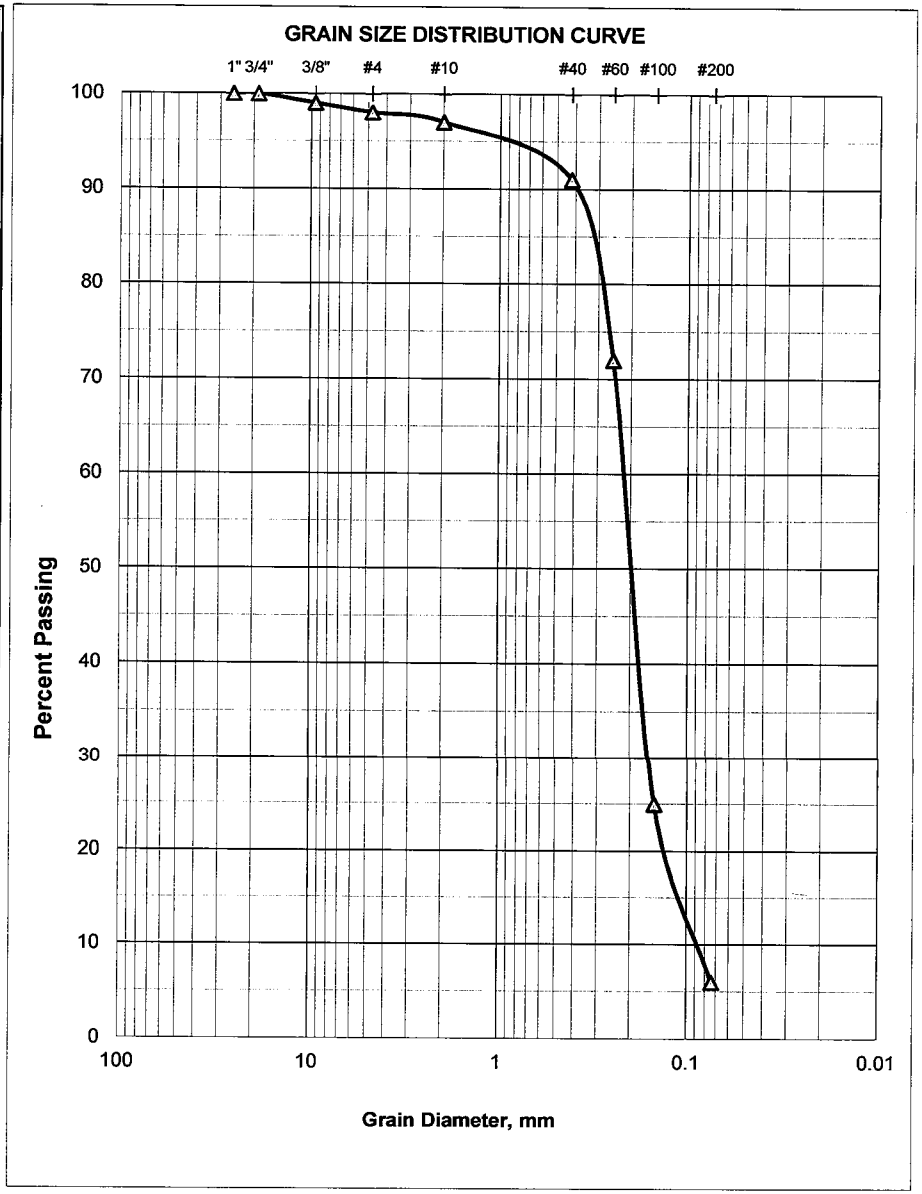
Material in Sample (%)		
Gravel	≤ No. 4	2
Coarse Sand	>No. 4-≤ No. 40	7
Fine Sand	>No. 40-≤ No. 200	85
Silt and Clays	>No. 200	6
Water Content		9%

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.

Florida Registration No. 42045



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GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2088CR **Sample No.:** 2 **Depth:** 2.0'-4.0'

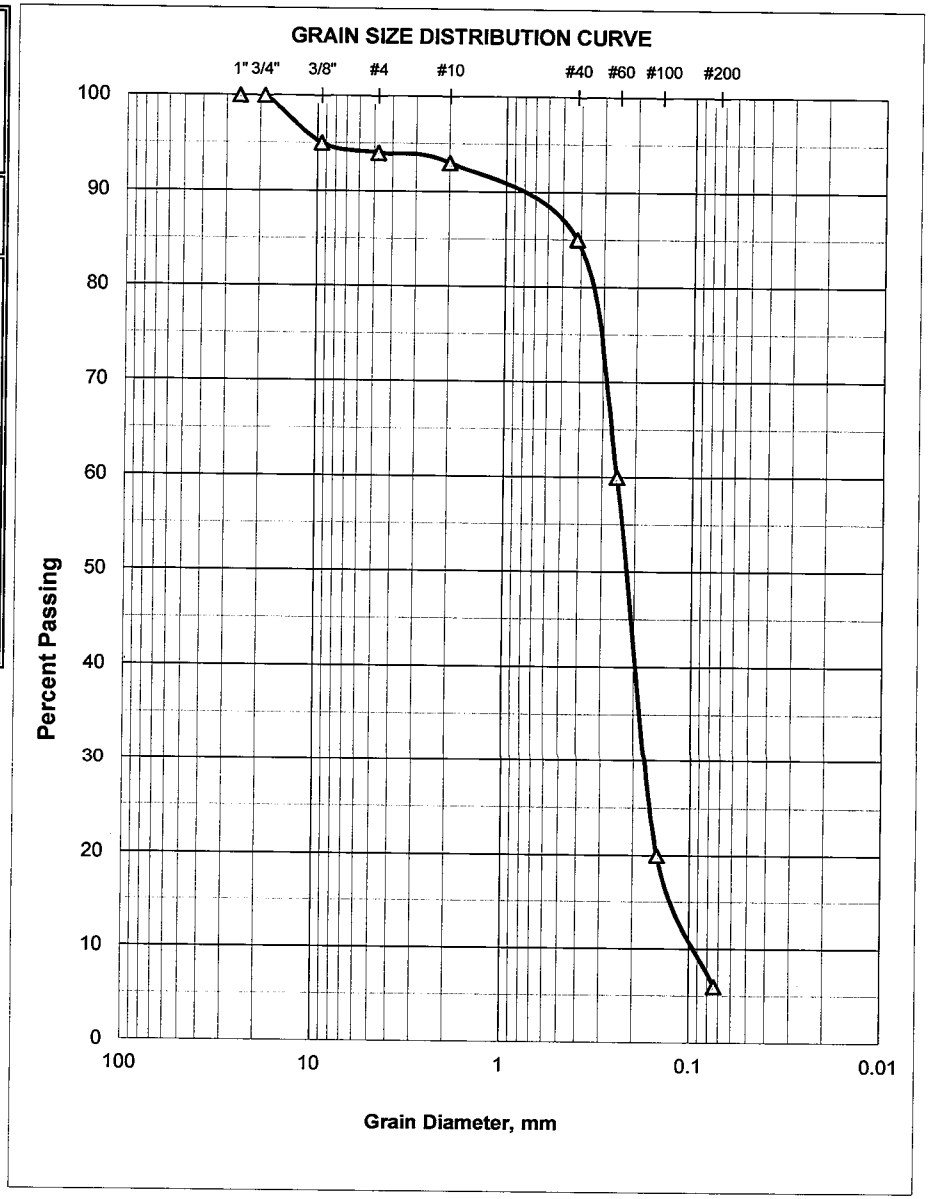
Date: 11/6/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	26.60	26.60	5	95	
4	4.76	5.10	31.70	6	94	AASHTO Classification:
10	2.00	5.90	37.60	7	93	
40	0.420	42.20	79.80	15	85	A-3
60	0.250	123.90	203.70	40	60	
100	0.149	204.90	408.60	80	20	
200	0.074	73.30	481.90	94	6	
PAN						

Total Dry Weight Before Wash, (gr) =	509.20
Percent Finer than No. 200 Sieve by Wash Method=	6%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	6
Coarse Sand	>No. 4-≤ No. 40	9
Fine Sand	>No. 40-≤ No. 200	79
Silt and Clays	>No. 200	6
Water Content		4%



Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.

Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2088CR **Sample No.:** 5 **Depth:** 8.0'-10.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 5:00 AM TO 11/08/14 5:00 AM
Wt. of Wet Soil + Can, grams	324.40
Wt. of Dry Soil + Can, grams	249.60
Wt. of Can, grams No. 611	9.20
Wt. of Dry Soil, grams	240.40
Wt. of Moisture, grams	74.80
Water Content, w%	31%
Date Sample Placed in Furnace:	11/09/14
Time in / out of furnace (minimum 6 hrs):	11/09/14 11:00 AM TO 11/09/14 5:00 PM
Weight of Crucible & Oven-Dried Sample:	26.30
Weight of Crucible and Sample After Ignition:	26.20
Weight of Crucible: No. 209	15.40
Weight of Oven-Dried Soil:	10.90
Weight Loss due to Ignition:	0.10
Percent Organics:	1%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:
A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2088CR **Sample No.:** 5 **Depth:** 8.0'-10.0'

Date: 11/07/14

Technician:			H.C.			
Date Sample Placed in Oven:			11/07/2014			
Time in / Out of Oven :	11/07/14	5:00 AM	TO	11/08/14	5:00 AM	
Wt. of Wet Soil + Can, grams			324.40			
Wt. of Dry Soil + Can, grams			249.60			
Wt. of Can, grams No. 611			9.20			
Wt. of Dry Soil, grams			240.40			
Wt. of Moisture, grams			74.80			
Water Content, w%			31%			
Wt. of Dry Soil + Can Before Wash, grams			238.70			
Wt. of Can, grams No. 611			9.20			
Wt. of Dry Soil Before Wash, grams			229.50			
Time in / Out of Oven :	11/09/14	11:00 AM	TO	11/10/14	11:00 AM	
Wt. of Dry Soil + Can After Wash, grams			227.20			
Wt. of Dry Soil After Wash, grams			218.00			
Total Loss, grams			11.50			
Percent Finer Than No. 200 Sieve			5%			

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166

Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2092R **Sample No.:** 3 **Depth:** 4.0'-6.0'

Date: 11/03/14

Technician:			H.C.			
Date Sample Placed in Oven:			11/04/2014			
Time in / Out of Oven :	11/04/14	6:00 AM	TO	11/05/14	6:00 AM	
Wt. of Wet Soil + Can, grams			615.80			
Wt. of Dry Soil + Can, grams			571.40			
Wt. of Can, grams No. 709			9.00			
Wt. of Dry Soil, grams			562.40			
Wt. of Moisture, grams			44.40			
Water Content, w%			8%			
Date Sample Placed in Furnace:			11/05/14			
Time in / out of furnace (minimum 6 hrs):	11/05/14	12:00 PM	TO	11/05/14	6:00 PM	
Weight of Crucible & Oven-Dried Sample:			27.00			
Weight of Crucible and Sample After Ignition:			26.80			
Weight of Crucible: No. 28			15.60			
Weight of Oven-Dried Soil:			11.40			
Weight Loss due to Ignition:			0.20			
Percent Organics:			2%			

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.

Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2092R **Sample No.:** 3 **Depth:** 4.0'-6.0'

Date: 11/03/14

Technician:	H.C.
Date Sample Placed in Oven:	11/04/2014
Time in / Out of Oven :	11/04/14 6:00 AM TO 11/05/14 6:00 AM
Wt. of Wet Soil + Can, grams	615.80
Wt. of Dry Soil + Can, grams	571.40
Wt. of Can, grams No. 709	9.00
Wt. of Dry Soil, grams	562.40
Wt. of Moisture, grams	44.40
Water Content, w%	8%
Wt. of Dry Soil + Can Before Wash, grams	561.10
Wt. of Can, grams No. 709	9.00
Wt. of Dry Soil Before Wash, grams	552.10
Time in / Out of Oven :	11/05/14 7:00 PM TO 11/06/14 7:00 PM
Wt. of Dry Soil + Can After Wash, grams	517.50
Wt. of Dry Soil After Wash, grams	508.50
Total Loss, grams	43.60
Percent Finer Than No. 200 Sieve	8%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2092CR **Sample No.:** 5 **Depth:** 8.0'-10.0'

Date: 11/07/14

Technician:	H.C.					
Date Sample Placed in Oven:	11/07/2014					
Time in / Out of Oven :	11/07/14	8:00 AM	TO	11/08/14	8:00 AM	
Wt. of Wet Soil + Can, grams	314.70					
Wt. of Dry Soil + Can, grams	267.40					
Wt. of Can, grams No. 612	9.10					
Wt. of Dry Soil, grams	258.30					
Wt. of Moisture, grams	47.30					
Water Content, w%	18%					
Date Sample Placed in Furnace:	11/09/14					
Time in / out of furnace (minimum 6 hrs):	11/09/14	11:00 AM	TO	11/09/14	5:00 PM	
Weight of Crucible & Oven-Dried Sample:	28.00					
Weight of Crucible and Sample After Ignition:	27.80					
Weight of Crucible: No. 299	16.50					
Weight of Oven-Dried Soil:	11.50					
Weight Loss due to Ignition:	0.20					
Percent Organics:	2%					

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2092CR **Sample No.:** 5 **Depth:** 8.0'-10.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 8:00 AM TO 11/08/14 8:00 AM
Wt. of Wet Soil + Can, grams	314.70
Wt. of Dry Soil + Can, grams	267.40
Wt. of Can, grams No. 612	9.10
Wt. of Dry Soil, grams	258.30
Wt. of Moisture, grams	47.30
Water Content, w%	18%
Wt. of Dry Soil + Can Before Wash, grams	255.80
Wt. of Can, grams No. 612	9.10
Wt. of Dry Soil Before Wash, grams	246.70
Time in / Out of Oven :	11/09/14 11:00 AM TO 11/10/14 11:00 AM
Wt. of Dry Soil + Can After Wash, grams	241.30
Wt. of Dry Soil After Wash, grams	232.20
Total Loss, grams	14.50
Percent Finer Than No. 200 Sieve	6%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166

Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2096CR **Sample No.:** 1B **Depth:** 0.5'-2.0'

Date: 11/03/14

Technician:	H.C.
Date Sample Placed in Oven:	11/04/2014
Time in / Out of Oven :	11/04/14 6:00 AM TO 11/05/14 6:00 AM
Wt. of Wet Soil + Can, grams	300.10
Wt. of Dry Soil + Can, grams	271.50
Wt. of Can, grams No. 710	8.90
Wt. of Dry Soil, grams	262.60
Wt. of Moisture, grams	28.60
Water Content, w%	11%
Date Sample Placed in Furnace:	11/05/14
Time in / out of furnace (minimum 6 hrs):	11/05/14 12:00 PM TO 11/05/14 6:00 PM
Weight of Crucible & Oven-Dried Sample:	27.50
Weight of Crucible and Sample After Ignition:	27.30
Weight of Crucible: No. 227	16.10
Weight of Oven-Dried Soil:	11.40
Weight Loss due to Ignition:	0.20
Percent Organics:	2%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.

Florida Registration No. 42045

AASHTO Classification:

A-1-b

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2096CR **Sample No.:** 1B **Depth:** 0.5'-2.0'

Date: 11/03/14

Technician:	H.C.
Date Sample Placed in Oven:	11/04/2014
Time in / Out of Oven :	11/04/14 6:00 AM TO 11/05/14 6:00 AM
Wt. of Wet Soil + Can, grams	300.10
Wt. of Dry Soil + Can, grams	271.50
Wt. of Can, grams No. 710	8.90
Wt. of Dry Soil, grams	262.60
Wt. of Moisture, grams	28.60
Water Content, w%	11%
Wt. of Dry Soil + Can Before Wash, grams	248.30
Wt. of Can, grams No. 710	8.90
Wt. of Dry Soil Before Wash, grams	239.40
Time in / Out of Oven :	11/05/14 7:00 PM TO 11/06/14 7:00 PM
Wt. of Dry Soil + Can After Wash, grams	225.70
Wt. of Dry Soil After Wash, grams	216.80
Total Loss, grams	22.60
Percent Finer Than No. 200 Sieve	9%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-1-b

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2096L **Sample No.:** 2 **Depth:** 2.0'-4.0'

Date: 11/03/14

Technician:	H.C.
Date Sample Placed in Oven:	11/04/2014
Time in / Out of Oven :	11/04/14 6:00 AM TO 11/05/14 6:00 AM
Wt. of Wet Soil + Can, grams	598.50
Wt. of Dry Soil + Can, grams	558.50
Wt. of Can, grams No. 711	8.80
Wt. of Dry Soil, grams	549.70
Wt. of Moisture, grams	40.00
Water Content, w%	7%
Date Sample Placed in Furnace:	11/05/14
Time in / out of furnace (minimum 6 hrs):	11/05/14 12:00 PM TO 11/05/14 6:00 PM
Weight of Crucible & Oven-Dried Sample:	28.80
Weight of Crucible and Sample After Ignition:	28.60
Weight of Crucible: No. 234	17.50
Weight of Oven-Dried Soil:	11.30
Weight Loss due to Ignition:	0.20
Percent Organics:	2%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2096L **Sample No.:** 2 **Depth:** 2.0'-4.0'

Date: 11/03/14

Technician:	H.C.
Date Sample Placed in Oven:	11/04/2014
Time in / Out of Oven :	11/04/14 6:00 AM TO 11/05/14 6:00 AM
Wt. of Wet Soil + Can, grams	598.50
Wt. of Dry Soil + Can, grams	558.50
Wt. of Can, grams No. 711	8.80
Wt. of Dry Soil, grams	549.70
Wt. of Moisture, grams	40.00
Water Content, w%	7%
Wt. of Dry Soil + Can Before Wash, grams	547.70
Wt. of Can, grams No. 711	8.80
Wt. of Dry Soil Before Wash, grams	538.90
Time in / Out of Oven :	11/05/14 8:00 PM TO 11/06/14 8:00 PM
Wt. of Dry Soil + Can After Wash, grams	534.00
Wt. of Dry Soil After Wash, grams	525.20
Total Loss, grams	13.70
Percent Finer Than No. 200 Sieve	3%

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)

Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,

HR Engineering Services, Inc.

AASHTO Classification:

A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2096L **Sample No.:** 5 **Depth:** 8.0'-10.0'

Date: 11/07/14

Technician:	H.C.					
Date Sample Placed in Oven:	11/07/2014					
Time in / Out of Oven :	11/07/14	8:00 AM	TO	11/08/14	8:00 AM	
Wt. of Wet Soil + Can, grams	472.50					
Wt. of Dry Soil + Can, grams	393.60					
Wt. of Can, grams No. 613	9.00					
Wt. of Dry Soil, grams	384.60					
Wt. of Moisture, grams	78.90					
Water Content, w%	21%					
Date Sample Placed in Furnace:	11/09/14					
Time in / out of furnace (minimum 6 hrs):	11/09/14	11:00 AM	TO	11/09/14	5:00 PM	
Weight of Crucible & Oven-Dried Sample:	33.80					
Weight of Crucible and Sample After Ignition:	33.50					
Weight of Crucible: No. 44	20.90					
Weight of Oven-Dried Soil:	12.90					
Weight Loss due to Ignition:	0.30					
Percent Organics:	2%					

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Organic Content Test performed in general accordance with ASTM D 2974 (AASHTO T 267)

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

AASHTO Classification:

A-3

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: RB-2096L **Sample No.:** 5 **Depth:** 8.0'-10.0'

Date: 11/07/14

Technician:	H.C.				
Date Sample Placed in Oven:	11/07/2014				
Time in / Out of Oven :	11/07/14	8:00 AM	TO	11/08/14	8:00 AM
Wt. of Wet Soil + Can, grams	472.50				
Wt. of Dry Soil + Can, grams	393.60				
Wt. of Can, grams No. 613	9.00				
Wt. of Dry Soil, grams	384.60				
Wt. of Moisture, grams	78.90				
Water Content, w%	21%				
Wt. of Dry Soil + Can Before Wash, grams	380.80				
Wt. of Can, grams No. 613	9.00				
Wt. of Dry Soil Before Wash, grams	371.80				
Time in / Out of Oven :	11/09/14	11:00 AM	TO	11/10/14	11:00 AM
Wt. of Dry Soil + Can After Wash, grams	368.90				
Wt. of Dry Soil After Wash, grams	359.90				
Total Loss, grams	11.90				
Percent Finer Than No. 200 Sieve	3%				

Moisture Content Test performed in general accordance with ASTM D 2216 (AASHTO T 265)
Fines Content Test performed in general accordance with ASTM C 136 (AASHTO T 27)

Respectfully Submitted,
HR Engineering Services, Inc.

AASHTO Classification:
A-3

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.

Corrosion Series

Project Name: I-95 CDC PHASE 3A-1

Project Number: HR12-891R **Date:** 11/10/14 **Tested by:** H.C.

Sample No.	Sampling Date	Resistivity, ohm-cm.	Chlorides, ppm	Sulfates, ppm	pH	Testing Date	Sub-Structure Environmental Classification	
							Steel	Concrete
B-2	09/02/14	1856	58	30	7.4	09/05/14	MA	MA
B-3	09/18/14	2220	35	26	7.6	09/19/14	MA	MA
B-7	09/17/14	2417	23	38	7.3	10/13/14	MA	MA
B-8	09/24/14	1927	33	33	7.6	10/13/14	MA	MA
B-11	09/11/14	985	180	40	7.2	09/19/14	EA	MA
B-12	09/02/14	970	191	34	7.3	09/19/14	EA	MA
NE Pond	10/10/14	1952	55	30	7.5	10/13/14	MA	MA
C-13 Canal	10/10/14	2427	15	77	7.3	10/13/14	MA	MA

MA: Moderately Aggressive

EA: Extremely Aggressive

Tests performed by HRES in accordance with Florida Method of Test Corrosion Series in Soil and Water, Designation FM 5-550 through FM 5-553

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R
Boring No.: CB-1 **Sample No.:** 1 **Depth:** 0.0'-2.0'
Date: 11/3/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	11.30	11.30	2	98	
3/8"	9.51	27.00	38.30	7	93	
4	4.76	14.20	52.50	10	90	AASHTO Classification:
10	2.00	17.90	70.40	13	87	
40	0.420	61.00	131.40	25	75	A-3
60	0.250	129.20	260.60	50	50	
100	0.149	189.60	450.20	86	14	
200	0.074	49.70	499.90	96	4	
PAN						

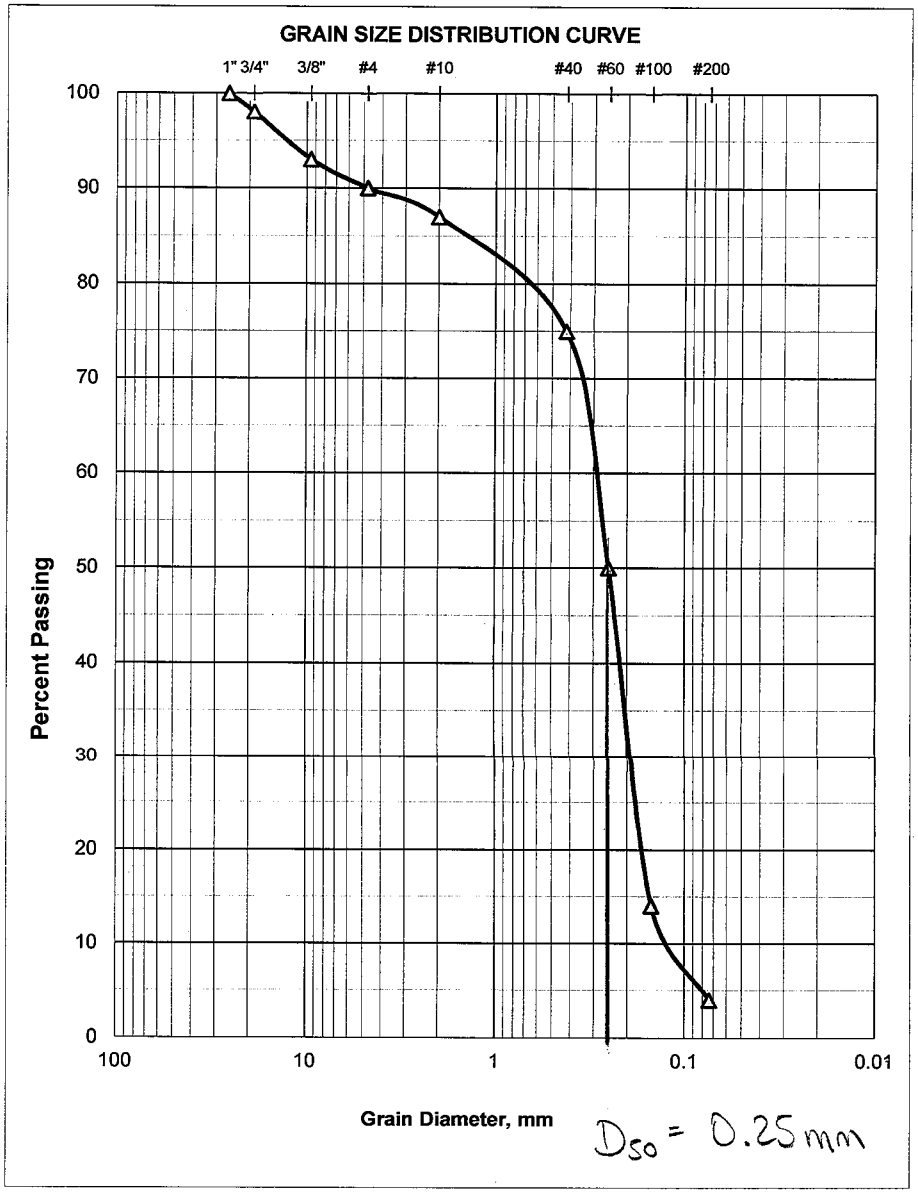
Total Dry Weight Before Wash, (gr) =	520.70
Percent Finer than No. 200 Sieve by Wash Method=	4%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	10
Coarse Sand	>No. 4-≤ No. 40	15
Fine Sand	>No. 40-≤ No. 200	71
Silt and Clays	>No. 200	4
Water Content		47%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166

Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: CB-1 **Sample No.:** 2 **Depth:** 2.0'-3.0'

Date: 11/3/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	34.40	34.40	6	94	
3/8"	9.51	2.50	36.90	6	94	
4	4.76	6.80	43.70	7	93	AASHTO Classification:
10	2.00	6.20	49.90	9	91	
40	0.420	34.90	84.80	15	85	A-3
60	0.250	135.40	220.20	39	61	
100	0.149	251.20	471.40	85	15	
200	0.074	57.10	528.50	95	5	
PAN						

Total Dry Weight Before Wash, (gr) = 553.70

Percent Finer than No. 200 Sieve by Wash Method= 5%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

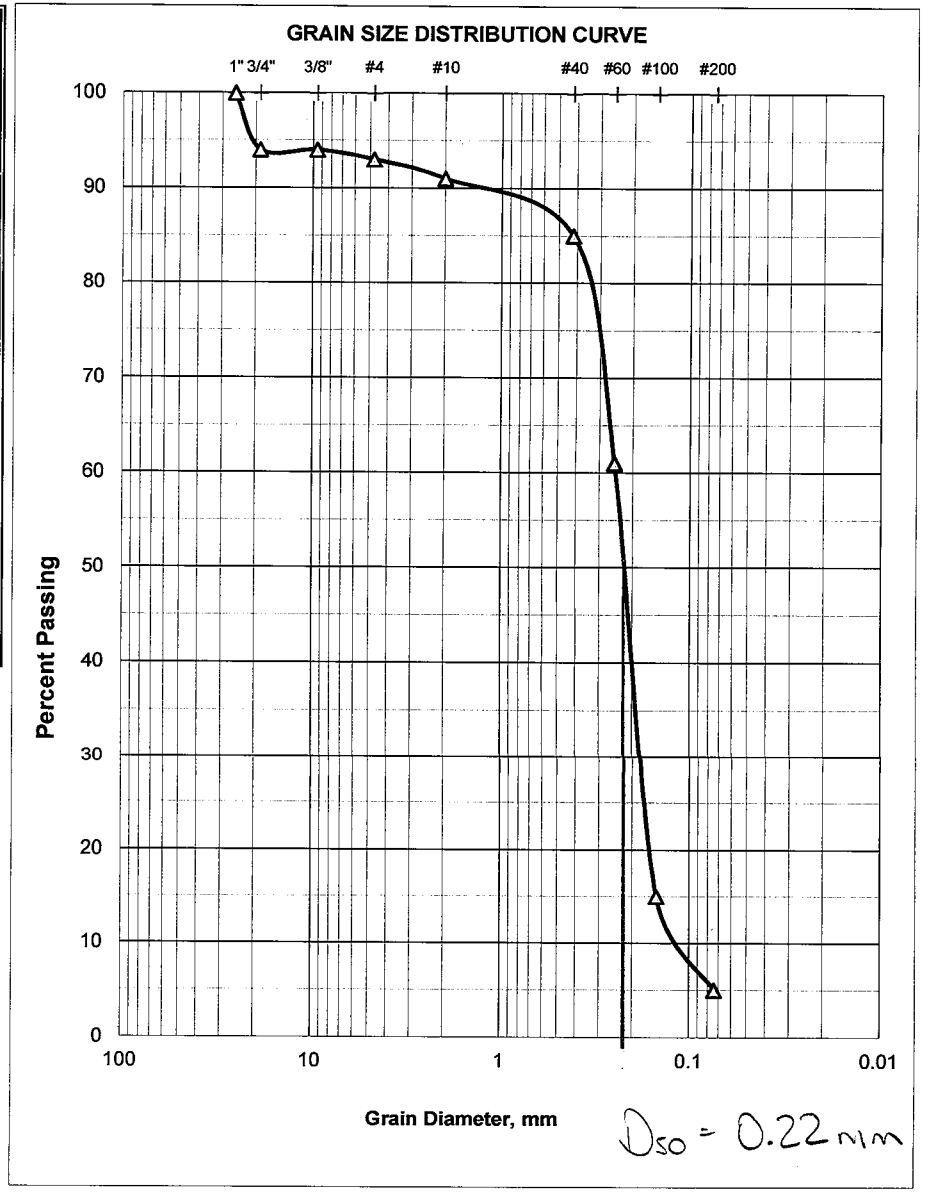
Material in Sample (%)		
Gravel	≤ No. 4	7
Coarse Sand	>No. 4-≤ No. 40	8
Fine Sand	>No. 40-≤ No. 200	80
Silt and Clays	>No. 200	5
Water Content		34%

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.

Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R
Boring No.: CB-2 **Sample No.:** 1 **Depth:** 0.0'-1.3'
Date: 11/3/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	21.10	21.10	3	97	
4	4.76	27.50	48.60	8	92	AASHTO Classification:
10	2.00	35.50	84.10	14	86	
40	0.420	94.70	178.80	31	69	A-3
60	0.250	175.40	354.20	63	37	
100	0.149	150.60	504.80	89	11	
200	0.074	33.60	538.40	95	5	
PAN						

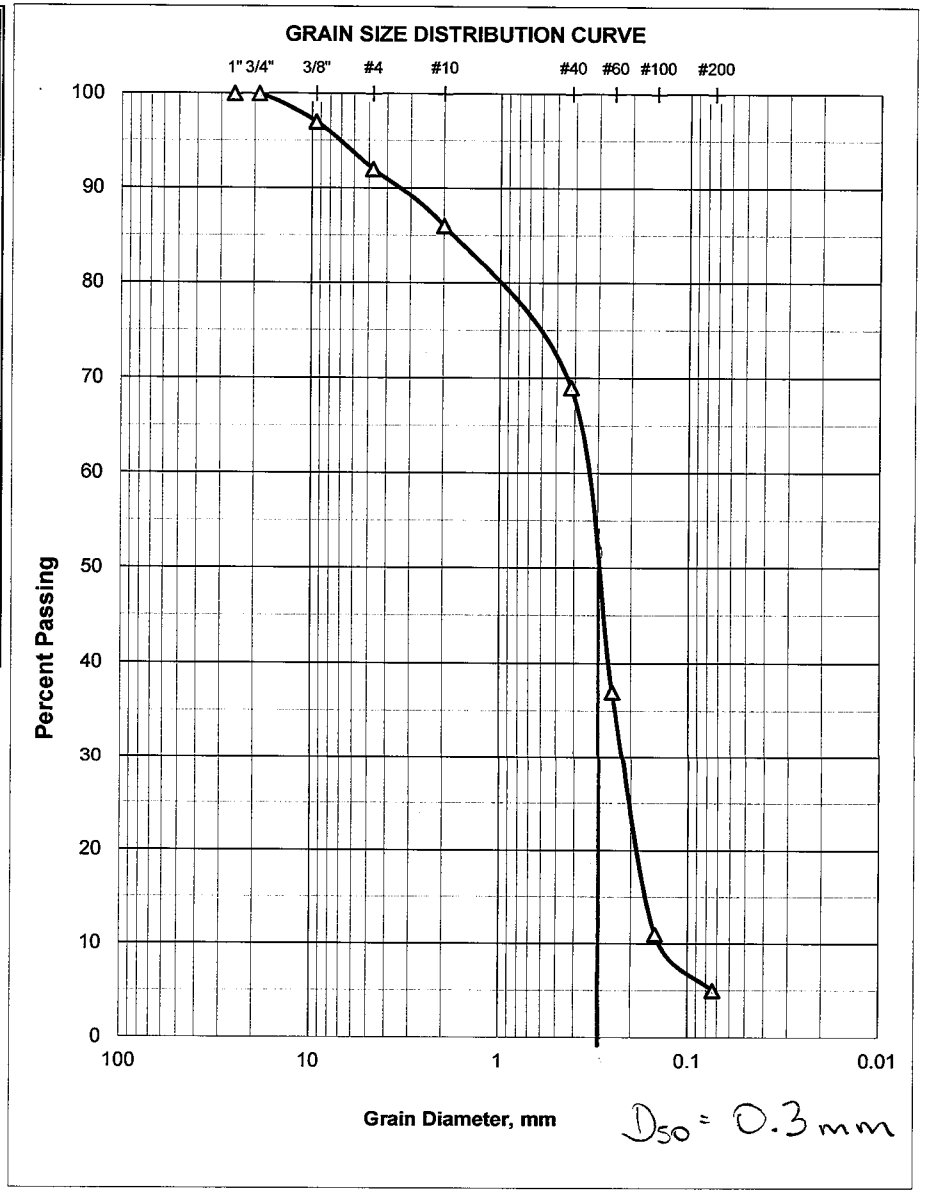
Total Dry Weight Before Wash, (gr) =	561.20
Percent Finer than No. 200 Sieve by Wash Method=	5%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	8
Coarse Sand	>No. 4-≤ No. 40	23
Fine Sand	>No. 40-≤ No. 200	64
Silt and Clays	>No. 200	5
Water Content		38%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R
Boring No.: CB-2 **Sample No.:** 2 **Depth:** 1.3'-2.0'
Date: 11/3/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	8.90	8.90	1	99	
3/8"	9.51	10.20	19.10	3	97	
4	4.76	9.30	28.40	5	95	AASHTO Classification:
10	2.00	22.70	51.10	9	91	
40	0.420	108.30	159.40	28	72	A-3
60	0.250	182.90	342.30	61	39	
100	0.149	159.80	502.10	90	10	
200	0.074	35.80	537.90	96	4	
PAN						

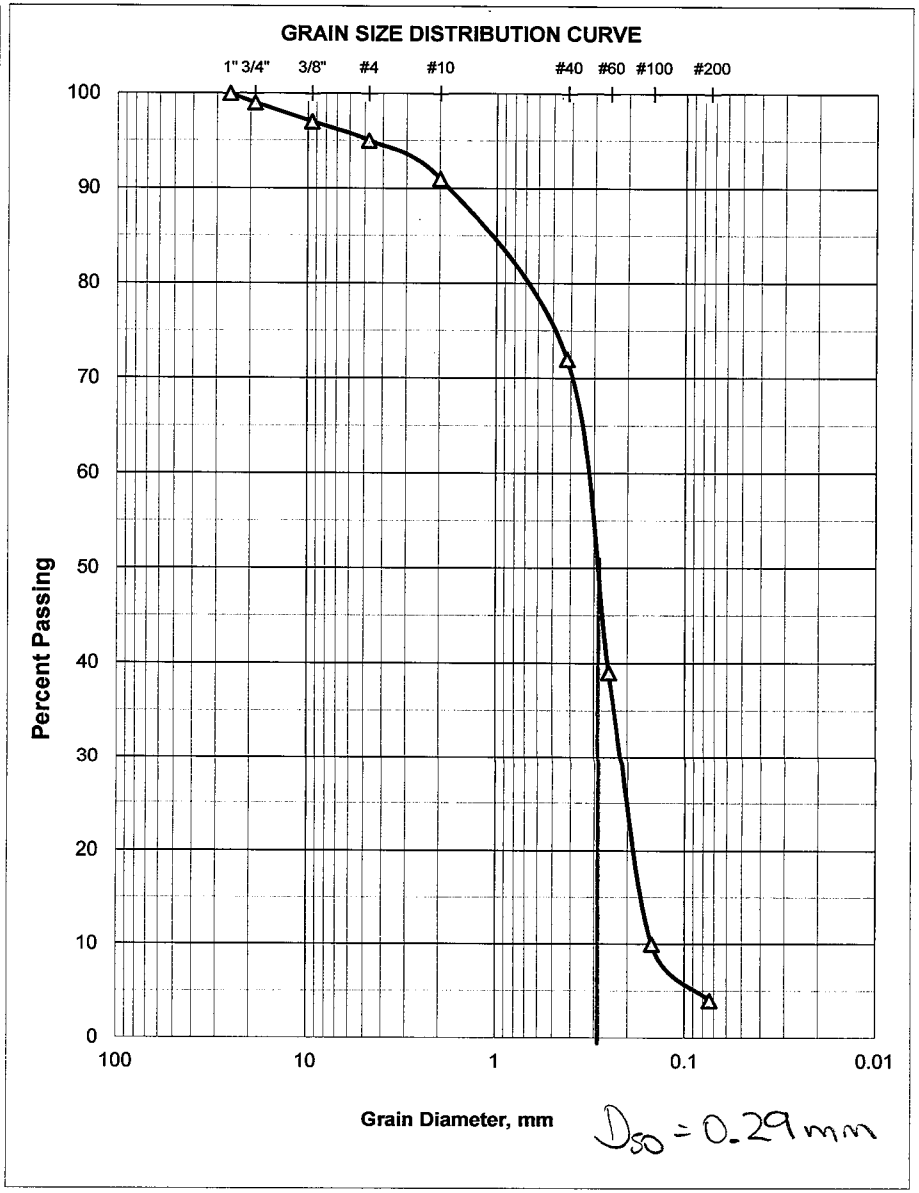
Total Dry Weight Before Wash, (gr) =	557.50
Percent Finer than No. 200 Sieve by Wash Method=	4%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	5
Coarse Sand	>No. 4-≤ No. 40	23
Fine Sand	>No. 40-≤ No. 200	68
Silt and Clays	>No. 200	4
Water Content		25%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



SR 9/I-95 CDC, From S. of Davie Blvd. to N. of W. Commercial Blvd. – Phase 3A-1 – Structures

1. INTRODUCTION

The purpose of this geotechnical exploration was to obtain information concerning the site and subsurface conditions in the areas of proposed bridge widening. This report discusses our exploratory and testing procedures, presents our findings and includes the following items:

Field Exploration performed by GCME, Inc.

This report presents the field test data performed by GCME, Inc. (GCME) for FDOT District 4, Project SR 9/I-95, from North of Oakland Park Boulevard to South of Glades Road, Broward and Palm Beach Counties, Florida, report dated October 26, 2012. The field exploration presented in this report includes:

- A total of eight (8) Standard Penetration Test borings, each to a depth of 85 feet. The test borings were performed to help characterize the subsurface conditions for the proposed widening of the bridges. The test borings subsurface information is presented on the Report of Core Borings in Appendix A.

Field Exploration performed by HRES, Inc.

The field exploration performed by HRES includes:

- A total of twenty two (22) Standard Penetration Test (SPT) borings to depths ranging from 80 to 100 feet. The borings were performed to help characterize subsurface information for widening of bridges along I-95. The test borings subsurface information is presented on the Report of Core Borings in Appendix A.

- A total of forty five (45) Standard Penetration Tests (SPT) borings to depths ranging from 20 to 42 feet. The borings were performed to help characterize subsurface information for construction of retaining walls along I-95. The test borings subsurface information is presented on the Report of Core Borings in Appendix A.

- A total of four (4) Standard Penetration Tests (SPT) borings to depths ranging from 40 to 50 feet. The borings were performed to help characterize subsurface information for construction of toll gantry spans at two different locations along I-95. The test borings subsurface information is presented on the Report of Core Borings in Appendix A.

- A brief description of our field testing procedures.

3.2.2 Corrosivity Classification Testing

In this study, seventeen (17) corrosion classification test results were used to environmentally classify the structures. The testing included pH, chlorides, sulfates contents, and resistivity results.

The Florida Department of Transportation Requirements Manual, Section 1.3 Environmental Classifications outlines the ranges of groundwater chemical properties considered corrosive to reinforced concrete substructure. In addition, that section environmentally classifies the superstructure based on factors located near the structure location. Based on this classification, an environment may be Slightly Aggressive, Moderately Aggressive, or Extremely Aggressive. The following table summarizes the environmental classification based on laboratory test results:

Table 3.2.2 Summary of Corrosion Classification Test Results

Bridge Description	Resistivity, ohm-cm.	pH	Sulfates, ppm	Chlorides, ppm	Sample Location	Sub-Structure Environmental Classification	
						Steel	Concrete
Davie Blvd. over I-95	1,996	7.6	42	39	P-8	MA	MA
SB I-95 Ramp to Davie Blvd.	1,996	7.6	42	39	P-8	MA	MA
NB I-95 Ramp to Davie Blvd.	1,996	7.6	42	39	P-8	MA	MA
Broward Blvd. to SB I-95 over I-95 SB Ramp to I-595	2,528	7.6	31	32	P-10	MA	MA
NB I-95 to Broward Blvd. over I-595 Ramp to NB I-95	2,528	7.6	31	32	P-10	MA	MA
WB Broward Blvd. over SFRC	2,528	7.6	31	32	P-10	MA	MA
EB Broward Blvd. over SFRC	2,528	7.6	31	32	P-10	MA	MA
Broward Blvd. over I-95	2,528	7.6	31	32	P-10	MA	MA
EB Broward Blvd. to NB I-95 Flyover	2,528	7.6	31	32	P-10	MA	MA
I-95 to PNR #1 over SB I-95/Broward Blvd.	2,528	7.6	31	32	P-10	MA	MA
PNR to I-95 NB over SB I-95/Broward Blvd.	2,528	7.6	31	32	P-10	MA	MA
PNR #2 to I-95 Ramp over SB I-95 and SB I-95 / I-595 Conn.	2,780-3,290	7.6-8.1	27-36	11-56	P-4, P-6	MA	SA to MA
SB I-95 Ramp over North Fork of the New River	1,856-2,220	7.4-7.6	26-30	35-58	B-2, B-3	MA	MA
SB I-95 over North Fork of the New River	1,856-2,220	7.4-7.6	26-30	35-58	B-2, B-3	MA	MA
NB I-95 over North Fork of the New River	1,856-2,220	7.4-7.6	26-30	35-58	B-2, B-3	MA	MA
NB I-95 Ramp over North Fork of the New River	1,856-2,220	7.4-7.6	26-30	35-58	B-2, B-3	MA	MA
SB I-95 over NW 6th Street	3,133	7.5	77	25	B-5	MA	SA
NB I-95 over NW 6th Street	3,133	7.5	77	25	B-5	MA	SA
Sunrise Blvd. (SR 838) over I-95	1,952	7.5	30	55	B-2100	MA	MA

4. SITE AND SUBSURFACE CONDITIONS

4.1 SITE CONDITIONS

The site conditions were observed by a geotechnical engineer during the months of August through December, 2014.

4.2 SUBSURFACE CONDITIONS

4.2.1 General

A graphical representation of the subsurface conditions encountered by the test borings drilled along the proposed bridges, walls and gantries is shown on the Report of Core Borings in Appendix A. These profiles and the following soil/rock conditions highlight the major subsurface stratification. The boring profiles on these sheets should be consulted for a detailed description of the soil/rock conditions encountered at each boring location. When reviewing the subsurface profiles, it should be understood that the soil/rock conditions may vary between and away from the boring locations.

4.2.2 Geologic Conditions

The project is located on the southern flank of the Florida Plateau, a stable, carbonate platform. In the study, the upper 200 feet of this platform is composed predominately of limestone and quartz sand. The sediments were deposited during several glacial and interglacial stages during the Pleistocene Epoch. Within the explored depths of this study, two distinct geological formations were encountered. These formations are the Miami Limestone Formation and the Fort Thompson Formation.

4.2.3 Miami Limestone

The Miami Limestone can be described as a soft tan white porous to very porous fossiliferous quartz sandy fine-grained slightly oolitic limestone. The solution channels in the limestone may be up to 2 inches in diameter at some locations, are filled with quartz fine sand and uncemented calcareous materials. The limestone varies in both thickness and competency within the investigated area.

The Miami Limestone was deposited in a shallow near shore marine carbonate bank environment. Spherical carbonate sand grains called oolites were formed and deposited in this environment. Near shore, processes transported quartz sand into the area and reworked some of the carbonate material. Encrusting organisms called bryozoans were locally abundant and formed patches on the substrate. After sea level receded, the carbonate deposit was exposed to fresh water and the cementation process was initiated. The degree of cementation, and therefore the competency of the rock, was influenced by both the abundance and the type of calcareous material in the original deposit. Humic and carbonic acids percolating downward through the material etched slots up to 4 feet deep in the surface of the stratum.

4.2.4 Fort Thompson Formation

Underlying the Miami Limestone Formation, the Fort Thompson Formation was generally encountered. The Fort Thompson Formation is composed of sediments of variable lithologies. The lithologies include non-fossiliferous quartz fine sand, fossiliferous quartz sandy limestone, coralline limestone, freshwater limestone, and quartz sandstone. These lithologies alternate abruptly in thickness and lateral extent.

The Fort Thompson limestone grades downward into a gray quartz and calcareous fine to medium sand. This sand has been cemented to varying degrees by carbonate material leached out of the overlying limestone. The cementation commonly takes the form of hard spherical sandstone nodules 1 to 2 inches in diameter occurring in a sand matrix. Sandstone lenses within the sand layer are the result of a more complete cementation.

4.2.5 Generalized Subsurface Conditions

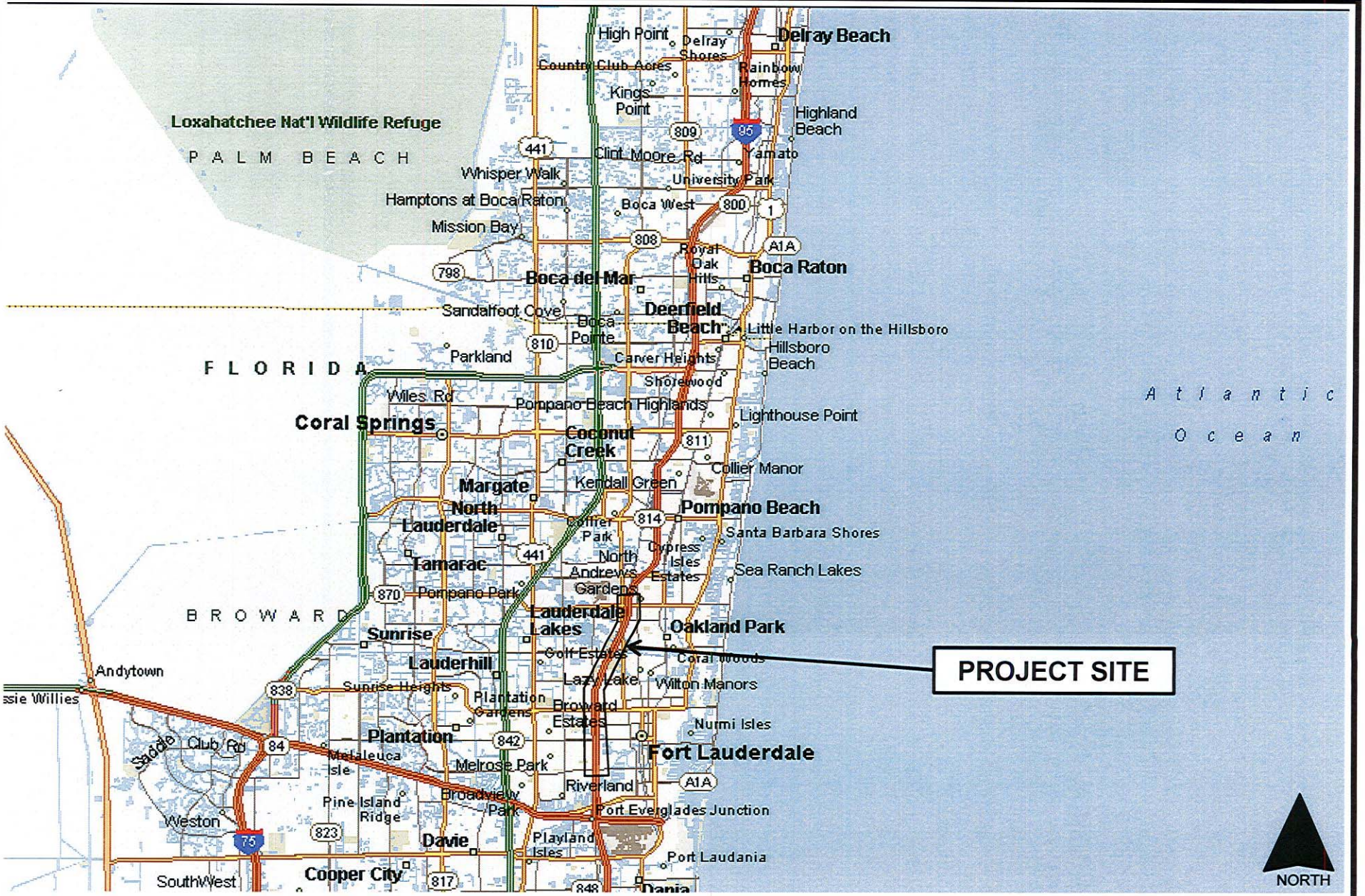
For a detailed subsurface condition at a particular borehole location, please refer to the Report of Core Borings in Appendix A.

4.2.6 Groundwater Conditions

The groundwater levels in the borings were measured at the time of drilling. Groundwater levels in the test borings were encountered at elevations ranging from 0.5 to 2.0 feet, NAVD88.

In addition, HRES reviewed the groundwater data provided by Broward County Office of Environmental Services, Water Management Division – Water Table Map, Average Wet Season dated February 17, 2000 (Attached in Appendix A). Based on this map, the average wet season

groundwater along the project is at 1.5 feet, NAVD88: A Seasonal High Ground Water Table (SHGWT) of 2.5 feet NAVD88 may be used for design. The Seasonal High Ground Water Table (SHGWT) was estimated by adding 12 inches over the average wet season. Fluctuation in the groundwater levels should be expected due to seasonal climatic changes, construction activity, rainfall variations, surface water runoff and other site-specific factors such as water elevation variations at the canals. Since groundwater level variations are anticipated, design drawing and specifications should accommodate such possibilities and construction planning should be based on the assumption that variations will occur.



I-95 CDC, FROM SOUTH OF DAVIE BLVD.
TO NORTH OF W. COMMERCIAL BLVD. – PHASE 3A-1
FLORIDA DEPARTMENT OF TRANSPORTATION–D4
BROWARD COUNTY, FLORIDA

HRES
HR Engineering Services, Inc.

SITE LOCATION MAP

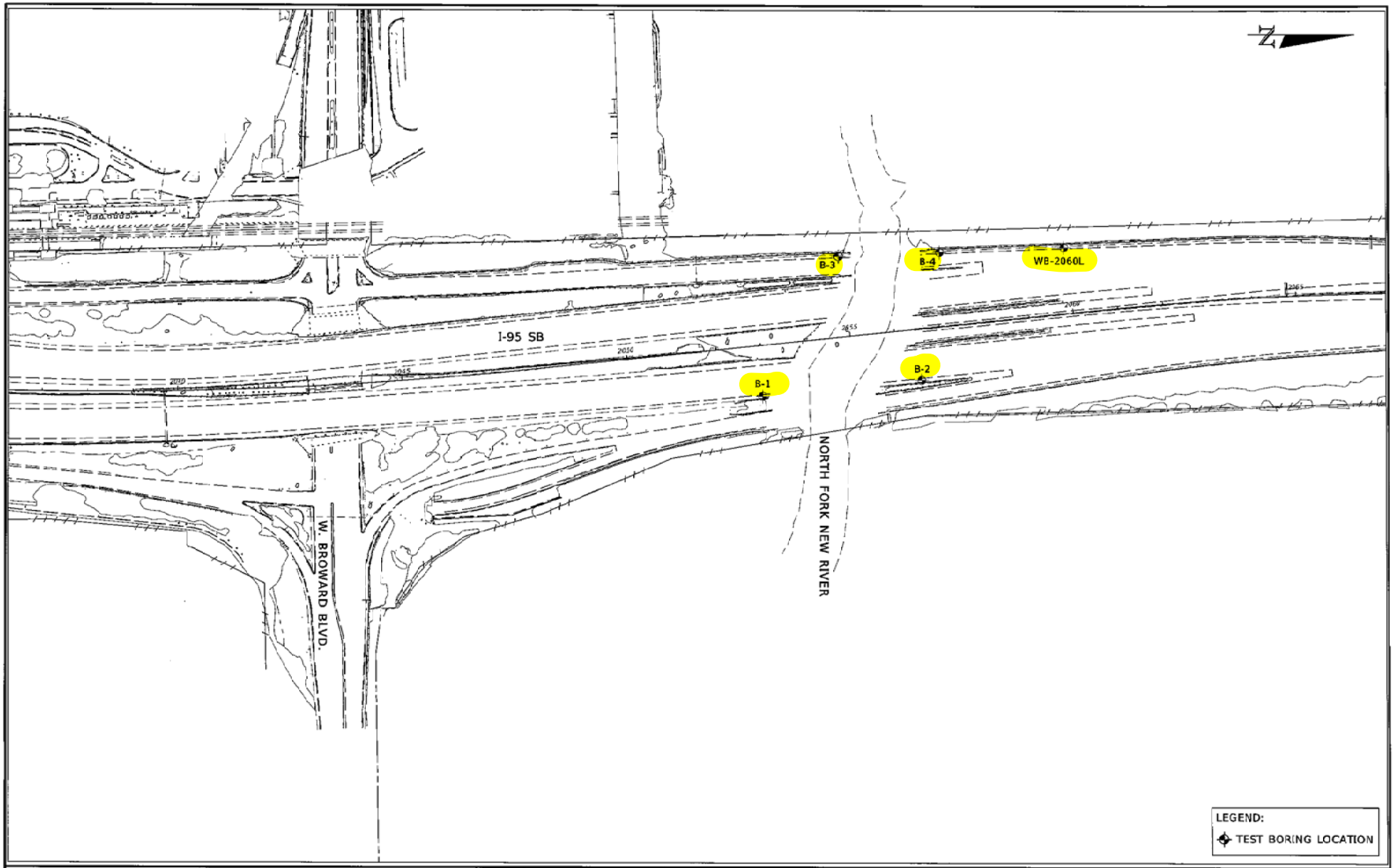
A-1

DRAWN BY: R.A.C.	DATE: 12/31/14
PROJECT No: HR12-891R	SCALE: NTS

SUMMARY OF TEST BORING LOCATIONS - STRUCTURES

I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD – PHASE 3A-1
FLORIDA DEPARTMENT OF TRANSPORTATION, DISTRICT 4
FINANCIAL PROJECT ID NO. 433108-4-52-01
BROWARD COUNTY, FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT NO. HR12-891R
DECEMBER 31, 2014

TEST No.	PLANE COORDINATES		STATION	OFFSET, ft	BASELINE
	NORTHING	EASTING			
B-1	651745.635	928933.413	2052+70	110.0 R	I-95
B-3	651912.669	928621.271	2054+50	190.0 L	I-95
B-2	652099.452	928897.026	2056+50	110.0 R	I-95
B-4	652138.344	928611.956	2057+50	160.0 L	I-95
WB-2060L	652414.897	928601.003	2060+00	150.0 L	I-95
B-5	653610.282	928802.389	2071+80	110.0 R	I-95
WB-2072L	653631.523	928599.473	2072+00	100.0 L	I-95
WB-2076L	654035.024	928601.819	2076+00	95.0 L	I-95
WB-2076R	654036.579	928788.510	2076+00	95.0 R	I-95
WB-2080L	654431.223	928599.290	2080+00	90.0 L	I-95
WB-2080R	654437.130	928784.310	2080+00	90.0 R	I-95
WB-2084R	654834.057	928781.775	2084+00	100.0 R	I-95
GB-2108L	657221.644	928571.960	2108+00	110.0 L	I-95
GB-2108R	657224.254	928753.052	2108+00	110.0 R	I-95
WB-2126L	659031.484	928453.120	2126+00	110.0 L	I-95
WB-2130L	659438.338	928468.239	2130+00	100.0 L	I-95
WB-2134L	659843.591	928517.160	2134+00	90.0 L	I-95
WB-2138L	660242.180	928604.179	2138+00	100.0 L	I-95
WB-2142L	660631.153	928722.095	2142+00	100.0 L	I-95
WB-2146L	661006.469	928864.374	2146+00	90.0 L	I-95
WB-2146R	660940.347	929040.313	2146+00	90.0 R	I-95
WB-2150L	661380.378	929013.877	2150+00	90.0 L	I-95
B-6	661449.074	929240.130	2151+00	100.0 R	I-95
B-8	661516.963	929056.307	2151+50	95.0 L	I-95
B-9	661687.581	929134.278	2153+30	95.0 L	I-95
B-7	661613.877	929318.137	2153+30	105 R	I-95
WB-2156R	661872.154	929404.731	2156+00	90.0 R	I-95
WB-2158L	662125.967	929305.015	2158+00	90.0 L	I-95
WB-2160R	662244.946	929549.640	2160+00	90.0 R	I-95
WB-2162L	662497.300	929449.277	2162+00	100.0 L	I-95
WB-2182L	664360.209	930179.366	2182+00	100.0 L	I-95
WB-2186L	664734.893	930335.400	2186+00	100.0 L	I-95
B-9A	665579.340	930791.838	2195+60	110.0 L	I-95
B-9B	665628.539	931093.311	2197+50	125.0 R	I-95
WB-2204R	666180.011	931437.135	2204+00	135.0 R	I-95
GB-2207L	666606.631	931416.666	2207+50	90.0 L	I-95
GB-2207R	666514.982	931578.319	2207+50	90.0 R	I-95
B-12	666838.256	931540.475	2210+00	120.0 L	I-95
B-10	666799.092	931723.765	2210+20	95.0 R	I-95
B-13	667057.109	931656.820	2212+76	86.0 L	I-95
B-11	666995.433	931843.864	2212+90	110.0 R	I-95



REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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Hernando R. Ramos
P.E. License No. 42045
7915 NW 72nd Avenue Medley, Florida 33166
Phone: (305) 888-8860 - Fax: (305) 888-8770
Certificate of Authorization No. 7991

DRAWN BY:	ME 12-14
CHECKED BY:	RMC 12-14
DESIGNED BY:	RMC 12-14
CHECKED BY:	MRE 12-14

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

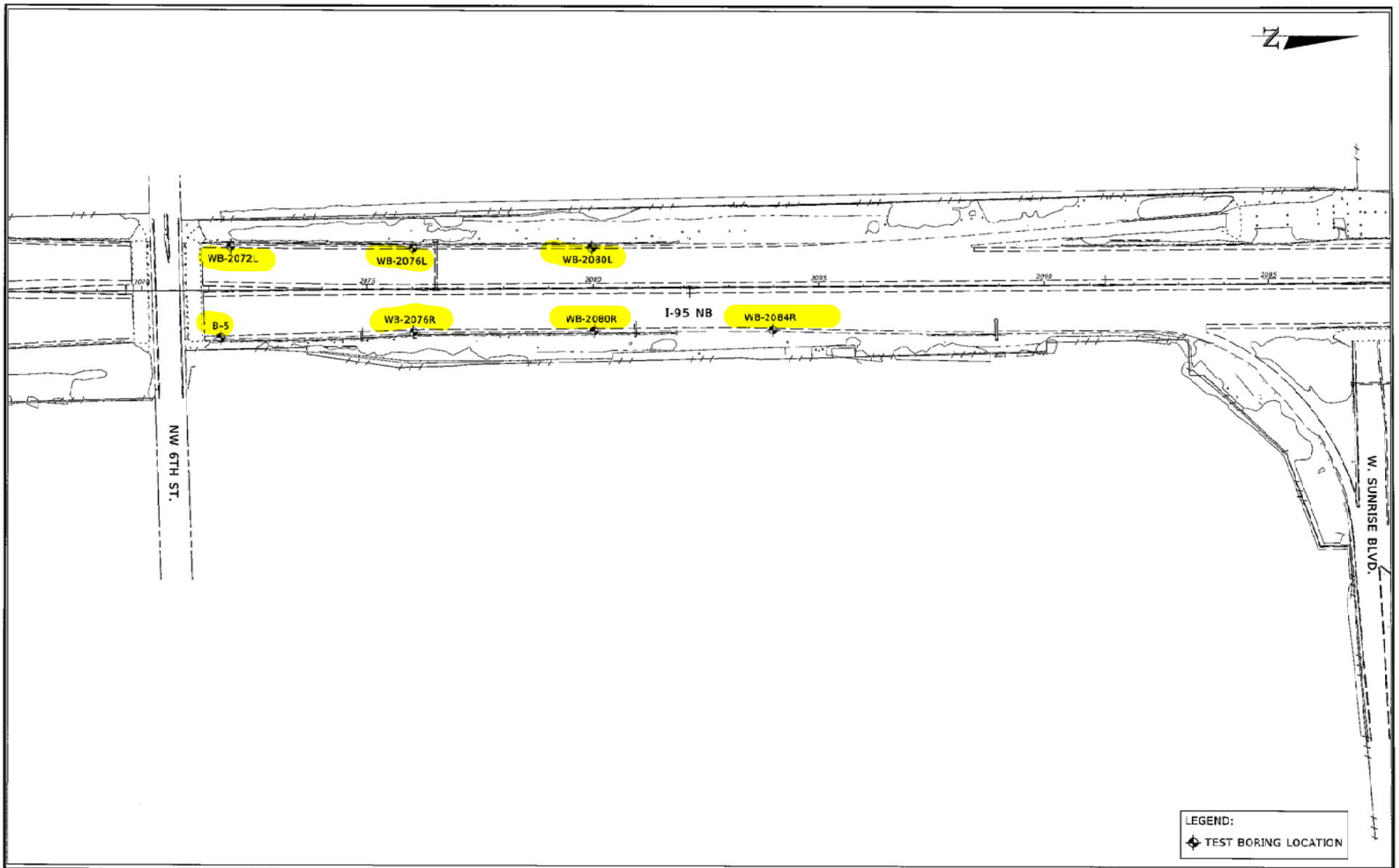
SHEET TITLE: FIELD EXPLORATION PLANS A-4

PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

REF. DWG. NO.

SHEET NO.

HRESUser 12/3/2014 12:34:38 PM F:\drive\SMF\12-891\I-95 cdc\Phase 2\Structures\Revision\FIELD EXPLORATION PLAN BORDER



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HR ENGINEERING SERVICES, INC.
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DRAWN BY: ML 12-14
CHECKED BY: RLC 12-14
DESIGNED BY: RLC 12-14
CHECKED BY: HRR 12-14

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SHEET TITLE: FIELD EXPLORATION PLANS — A-5

PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

REF. DWG NO.

SHEET NO.

HRESUser

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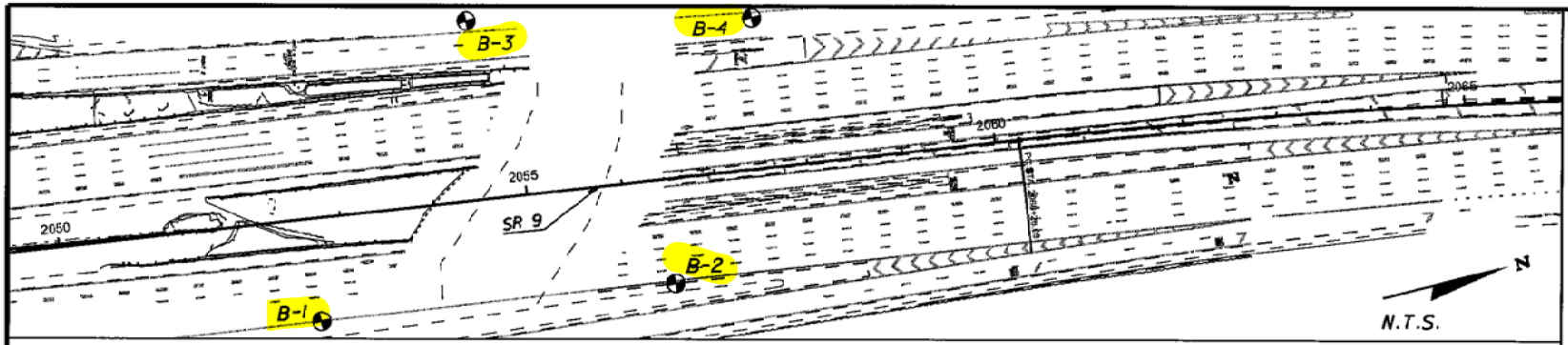
BRIDGE OVER NORTH FORK NEW RIVER

- HRES BORINGS B-1, B-2, B-3, AND B-4



B-1

NORTHING: 651745.635
EASTING: 928933.413
STATION: 2052+70
OFFSET: 100.0 R
ELEVATION: 12.5 FT.
DATE: 8/29/14

GWE @ 0.5 FT.

DEPTH, FT.	N	
0.0		ASPHALT (5.0")
0.4	71	VERY DENSE LIGHT BROWN SILTY FINE SAND WITH SOME LIMEROCK (FILL), GM
2.0	28	DENSE BROWN SILTY FINE SAND WITH TRACES OF LIMEROCK, SM
	27	2.0'-4.0': W.C.= 9%; >4= 76%; >200= 13%
6.0	24	
	14	MEDIUM DENSE LIGHT BROWN FINE SAND, SP
13.0	11	FIRM TO VERY SOFT GRAY SANDY SILT, ML
	5	13'-15': W.C.= 44%; >200= 78%
	4	16'-18': W.C.= 60%; >200= 99%
	WH	18'-20': W.C.= 43%; >200= 64%
	WH	21'-23': W.C.= 50%; >200= 77%
	1	23'-25': W.C.= 70%; >200= 92%
25.0	5	
	21	LOOSE TO MEDIUM DENSE BROWN FINE SAND, SP
	20	
	11	
35.0	14	MEDIUM DENSE TO LOOSE BROWN FINE SAND, SP
	6	
	7	
43.0	23	
	24	
	37	
	42	LIGHT GRAY POROUS SANDSTONE AND SOME FINE SAND
	44	
	46	
	47	
	40	
55.0	44	
	36	LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND
	24	
73.0	26	
	18	MEDIUM DENSE LIGHT GRAY SILTY FINE SAND WITH TRACES OF LIMESTONE LENSES, SM
	21	
78.0	83/9"	
	50/2"	
	50/5"	LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND
	50/4"	
	52	
	50/2"	
	50/5"	
	50/4"	
100.0	50/4"	

B.T. @ 100.0 FT.
NW CASING TO 96.5 FT.

ELEVATION, FT (NAVD88)

B-2

NORTHING: 652099.452
EASTING: 928897.025
STATION: 2056+50
OFFSET: 110.0 R
ELEVATION: 12.2 FT.
DATE: 9/02/14

GWE @ 0.5 FT.

DEPTH, FT.	N	
0.0		ASPHALT (6.0")
0.5	66	VERY DENSE LIGHT BROWN SILTY FINE SAND WITH SOME LIMEROCK (FILL), GM
2.0	36	DENSE BROWN SILTY FINE SAND WITH TRACES OF LIMEROCK, SP-SM
	39	4.0'-6.0': W.C.= 7%; >4= 74%; >200= 10%
6.0	33	
	38	DENSE TO VERY DENSE BROWN TO LIGHT BROWN SILTY FINE SAND WITH SOME LIMEROCK (FILL), SM
13.0	46	LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND
16.0	15	
18.0	8	LOOSE BROWN FINE SAND, SP
21.0	9	LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND
	11	
	16	
	14	MEDIUM DENSE TO DENSE LIGHT BROWN TO BROWN FINE SAND, SP
	21	
	13	
35.0	25	
	20	
	21	
	19	MEDIUM DENSE TO DENSE BROWN TO LIGHT GRAY FINE SAND, SP
	8	
	9	
	22	
53.0	28	
	44	
	38	
	44	VERY DENSE TO DENSE LIGHT GRAY FINE SAND WITH TRACES OF SANDSTONE LENSES, SP
	35	
	32	
68.0	28	
	3	LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND
73.0	5	
	5	LIGHT GRAY POROUS SANDSTONE AND SOME FINE SAND
	9	
80.0	50/3"	
	88	
	97	
	50/3"	LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND
	50/4"	
	50/2"	
	41	
	23	
100.0	50/4"	

B.T. @ 100.0 FT.
NW CASING TO 98.5 FT.

ELEVATION, FT (NAVD88)

HORIZONTAL SCALE: 0 5 20 N.T.S.

LEGEND:

- ASPHALT
- LIMEROCK FILL
- SANDY SILT
- SANDSTONE WITH SOME FINE SAND
- SILTY SAND
- FINE SAND
- LIMESTONE WITH SOME FINE SAND OR AND FINE SAND
- WATER LOSS
- GROUND WATER LEVEL AT BORING COMPLETION

B.T. BORING TERMINATED
WH: WEIGHT OF HAMMER
W.C.: WATER CONTETNT
>4: PERCENT PASSING #4 SIEVE
>200: PERCENT PASSING #200 SIEVE
N: SPT VALUE FOR A 12-INCH PENETRATION (AUTOMATIC HAMMER)
HAMMER WEIGHT = 140 LB
DROP HEIGHT = 30 IN

THE TEST BORINGS WERE PERFORMED BY MRES USING A CME-55 TRUCK MOUNTED RIG.

GRANULAR MATERIALS:

RELATIVE DENSITY	SPT N-VALUE (BLOWS/12 INCHES)
VERY LOOSE	<3
LOOSE	3-8
MEDIUM DENSE	9-24
DENSE	24-40
VERY DENSE	>40

SILTS AND CLAYS:

CONSISTENCY	SPT N-VALUE (BLOWS/12 INCHES)
VERY SOFT	<1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	>24

ENVIRONMENTAL CLASSIFICATION
SUBSTRUCTURE:
CONCRETE: MODERATELY AGGRESSIVE
STEEL: MODERATELY AGGRESSIVE
SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

Resistivity ohms-cm	pH	Sulfates ppm	Chlorides ppm
1,856-2,220	7.4-7.6	25-30	35-58

I-95 OVER NORTH FORK NEW RIVER

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 6G5-23.003, F.A.C.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HR ENGINEERING SERVICES, INC.
Hernando R. Ramos
P.E. License No. 42045
7815 NW 72nd Avenue Medley, Florida 33166
Phone (305) 888-8880 - Fax: (305) 888-8770
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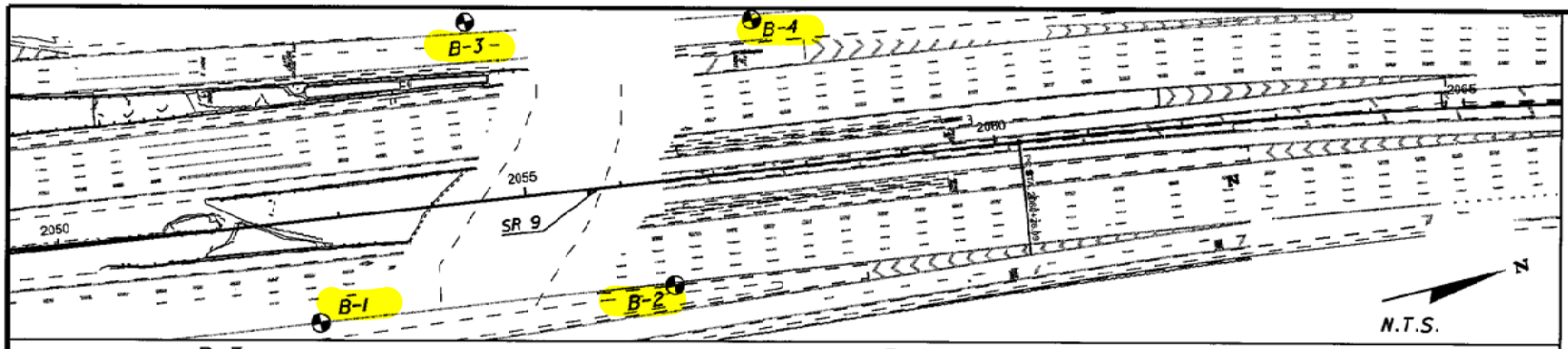
DRAWN BY: MME 12-14
CHECKED BY: NH 12-14
DESIGNED BY: NH 12-14
CHECKED BY: HRR 12-14

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433109-4-52-01

SHEET TITLE: REPORT OF CORE BORINGS
A-14
REF. DWG. NO.
SHEET NO.
PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

$USER$ $DATE$ $TIME$ $FILE$



B-3

NORTHING: 65912.669
EASTING: 928691.271
STATION: 2054+50
OFFSET: 190.0 L
ELEVATION: 10.0 FT.
DATE: 9/8/14

GWE @ 0.5 FT.

DEPTH, FT.	N	
0.0		
0.8	28	ASPHALT (6.0")
1.8	14	DENSE LIGHT BROWN SILTY FINE SAND WITH SOME LIMEROCK (FILL), SM
3.0	17	DENSE TO MEDIUM DENSE BROWN FINE SAND WITH TRACES OF LIMEROCK, SP
4.0	12	
6.0	12	MEDIUM DENSE LIGHT BROWN FINE SAND WITH CONCRETE DEBRIS AND LIMEROCK, SP-SM
8.0	9	5.0'-8.0': W.C.= 5%; >#4= 32%; >200= 5%
9.0	9	MEDIUM DENSE BROWN FINE SAND, SP
15.0	12	
16.0	4	
17.0	7	LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND
18.0	6	
19.0	14	
28.0	14	
29.0	17	MEDIUM DENSE BROWN FINE SAND, SP
33.0	20	
34.0	25	
35.0	22	
36.0	20	DENSE TO MEDIUM DENSE BROWN FINE SAND, SP
43.0	19	
44.0	26	
45.0	22	
46.0	20	
47.0	21	DENSE TO MEDIUM DENSE BROWN TO LIGHT BROWN FINE SAND, SP
48.0	24	
49.0	19	
60.0	24	
53.0	26	DENSE LIGHT BROWN FINE SAND, SP
54.0	48	
55.0	42	VERY DENSE LIGHT BROWN FINE SAND WITH SOME SANDSTONE LENSES, SM
68.0	15	
69.0	14	
70.0	20	
71.0	22	
72.0	50/5"	
73.0	50/3"	
74.0	50/2"	
75.0	50/5"	LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND
86.0	50/3"	
87.0	50/5"	
88.0	31/9"	
89.0	31/8"	
100.0	50/3"	

B.T. @ 100.0 FT.
NW CASING TO 98.5 FT.

ELEVATION, FT (NAVD88)

B-4

NORTHING: 65238.344
EASTING: 928611.956
STATION: 2057+50
OFFSET: 150.0 L
ELEVATION: 14.0 FT.
DATE: 9/19/14

GWE @ 0.5 FT.

DEPTH, FT.	N	
0.0		
0.9	52	ASPHALT (4.0")
2.0	32	VERY DENSE TO DENSE LIGHT BROWN TO BROWN SILTY FINE SAND WITH TRACES OF LIMEROCK, SP-SM
3.0	27	0.3'-2.0': W.C.= 5%; >#4= 82%; >200= 8%
4.0	22	
5.0	11	DENSE TO MEDIUM DENSE BROWN TO LIGHT BROWN FINE SAND WITH TRACES OF LIMEROCK, SP
6.0	11	
7.0	15	
8.0	15	
9.0	7	
13.0	4	MEDIUM DENSE BROWN FINE SAND WITH TRACES OF ORGANICS, SP
14.0	11	
15.0	10	
16.0	14	
18.0	15	LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND
19.0	17	
20.0	19	
21.0	20	
23.0	15	
24.0	16	
25.0	16	
26.0	15	MEDIUM DENSE LIGHT BROWN TO BROWN FINE SAND, SP
27.0	19	
28.0	32	
29.0	26	
30.0	33	
31.0	30	
32.0	33	
33.0	28	
34.0	20	
35.0	15	
36.0	39	
37.0	91/10"	
38.0	50/5"	
39.0	50/4"	
40.0	36	
41.0	104	MEDIUM DENSE TO DENSE LIGHT GRAY FINE SAND, SP
42.0	96/9"	
43.0	29	
44.0	36	
45.0	32	
100.0		

B.T. @ 100.0 FT.
NW CASING TO 98.5 FT.

ELEVATION, FT (NAVD88)

0 5 20
HORIZONTAL SCALE: N.T.S.

LEGEND:

- ASPHALT
- LIMEROCK FILL
- FINE SAND WITH SOME SANDSTONE LENSES
- FINE SAND
- LIMESTONE WITH SOME FINE SAND OR AND FINE SAND
- SILTY SAND

GROUND WATER LEVEL AT BORING COMPLETION

B.T. BORING TERMINATED

N: STANDARD PENETRATION RESISTANCE (AUTOMATIC HAMMER)

W.C.: WATER CONTENT

>#4: PERCENT PASSING #4 SIEVE

>200: PERCENT PASSING #200 SIEVE

HAMMER WEIGHT = 140 LB

DROP HEIGHT = 30 IN

THE TEST BORINGS WERE PERFORMED BY HRES USING A CME-55 TRUCK MOUNTED RIG.

GRANULAR MATERIALS:

RELATIVE DENSITY	SPT N-VALUE (BLOWS/12 INCHES)
VERY LOOSE	<3
LOOSE	3-8
MEDIUM DENSE	8-24
DENSE	24-40
VERY DENSE	>40

SILTS AND CLAYS:

CONSISTENCY	SPT N-VALUE (BLOWS/12 INCHES)
VERY SOFT	<1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	>24

ENVIRONMENTAL CLASSIFICATION

SUBSTRUCTURE:
CONCRETE: MODERATELY AGGRESSIVE
STEEL: MODERATELY AGGRESSIVE
SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

Resistivity ohms-cm	pH	Sulfates ppm	Chlorides ppm
1,856-2,220	7.4-7.6	26-30	35-58

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 6G15-23.003, F.A.C.

I-95 OVER NORTH FORK NEW RIVER

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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Hernando R. Ramos
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Certificate of Authorization No. 7991

DRAWN BY: MAE 12-14
CHECKED BY: NH 12-14
DESIGNED BY: NH 12-14
CHECKED BY: HRR 12-14

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

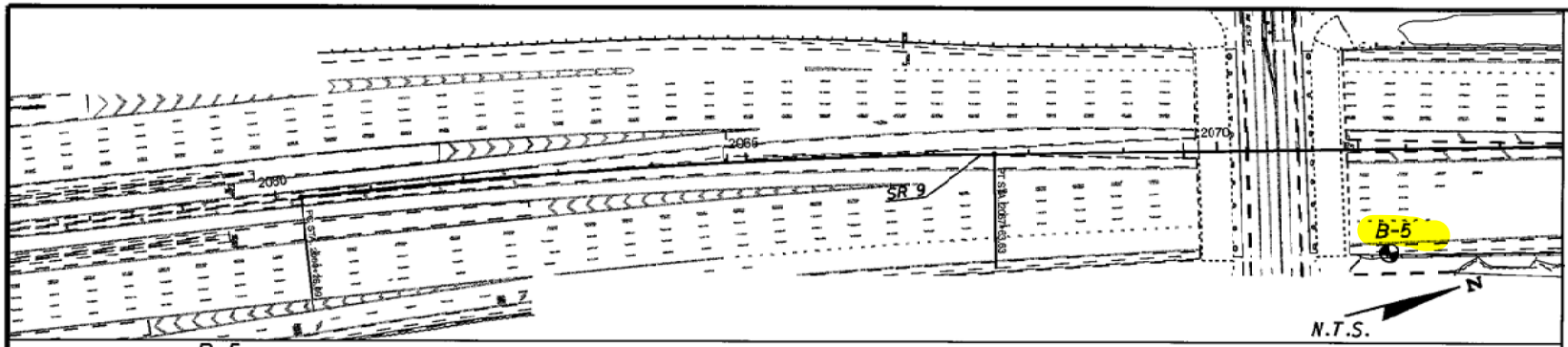
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SHEET TITLE: REPORT OF CORE BORINGS
REF. DWG. NO.: A-15
PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1
SHEET NO.:

#USER# #DATE# #TIME# #FILE#

BRIDGE OVER NW 6TH STREET

- HRES BORING B-5



B-5

NORTHING: 653610.282
EASTING: 928802.389
STATION: 207+60
OFFSET: 100.0 R
ELEVATION: 29.0 FT.
DATE: 9/03/14

DEPTH, FT.	N	
0.0		
0.5		ASPHALT (6.0'')
2.0	16	LIGHT BROWN SILTY FINE SAND WITH SOME LIMEROCK (FILL), GM
	10	MEDIUM DENSE BROWN SILTY FINE SAND WITH TRACES OF LIMEROCK, SP-SM
	9	5.0'-8.0': W.C.= 13%; >4= 63%; >200= 5%
8.0	13	
	12	MEDIUM DENSE BROWN TO LIGHT BROWN SILTY FINE SAND WITH SOME LIMEROCK (FILL), GM
	22	
	19	
	15	
23.0	19	DENSE LIGHT BROWN FINE SAND, SP
	29	
28.0	30	DENSE TO MEDIUM DENSE BROWN ORGANIC STAINED FINE SAND, SP
	28	
	25	
35.0	14	MEDIUM DENSE TO DENSE BROWN FINE SAND, SP
	14	
	16	
	16	
45.0	28	MEDIUM DENSE TO DENSE BROWN FINE SAND, SP
	20	
50.0	25	
	19	
	20	MEDIUM DENSE TO DENSE BROWN TO LIGHT BROWN FINE SAND, SP
	18	
	17	
	19	
	24	
	28	
	33	
73.0	28	MEDIUM DENSE TO DENSE LIGHT BROWN FINE SAND, SP
	15	
	23	
	24	
	24	
	19	
88.0	25	
	52	
	19	
	50/5''	LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND
	86/10''	
100.0	51	

GWE @ 1.0 FT.

B.T. @ 100.0 FT.
NW CASING TO 98.5 FT.

ELEVATION, FT (NAVD88)

0 5 20
HORIZONTAL SCALE: N.T.S.

LEGEND:

- ASPHALT
- FINE SAND
- LIMEROCK FILL
- LIMESTONE WITH SOME FINE SAND OR AND FINE SAND
- SILTY SAND
- WATER LOSS
- GROUND WATER LEVEL AT BORING COMPLETION
- B.T. BORING TERMINATED
- N: STANDARD PENETRATION RESISTANCE (AUTOMATIC HAMMER)
- W.C.: WATER CONTENT
- >4: PERCENT PASSING #4 SIEVE
- >200: PERCENT PASSING #200 SIEVE
- HAMMER WEIGHT = 140 LB
- DROP HEIGHT = 30 IN

THE TEST BORING WAS PERFORMED BY HRES USING A CME-55 TRUCK MOUNTED RIG.

GRANULAR MATERIALS:

RELATIVE DENSITY	SPT N-VALUE (BLOWS/12 INCHES)
VERY LOOSE	<3
LOOSE	3-8
MEDIUM DENSE	8-24
DENSE	24-40
VERY DENSE	>40

SILTS AND CLAYS:

CONSISTENCY	SPT N-VALUE (BLOWS/12 INCHES)
VERY SOFT	<1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	>24

ENVIRONMENTAL CLASSIFICATION

SUBSTRUCTURE:
STEEL: MODERATELY AGGRESSIVE
CONCRETE: SLIGHTLY AGGRESSIVE
SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

Resistivity ohms-cm	pH	Sulfates ppm	Chlorides ppm
3,133	7.5	7.7	25

I-95 NB OVER NW 6TH STREET

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 6G5-23.003, F.A.C.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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DRAWN BY: MAE 12-14
CHECKED BY: NH 12-14
DESIGNED BY: NH 12-14
CHECKED BY: HRR 12-14

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

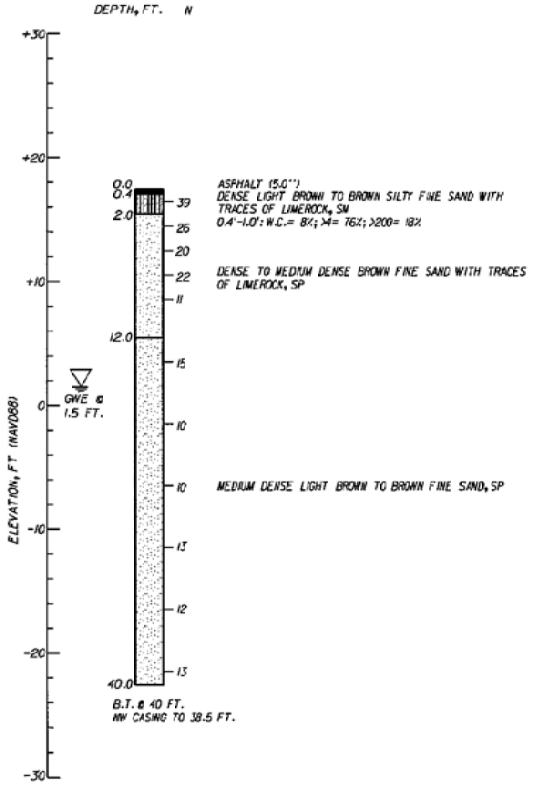
SHEET TITLE: REPORT OF CORE BORINGS
A-17
REF. DWG. NO.
SHEET NO.
PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

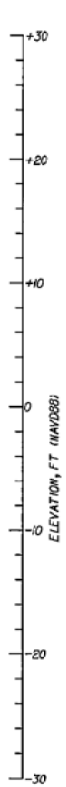
$USERN $DATE$ $TIME$ $FILE$

RETAINING WALL BORINGS

WB-2060L

NORTHING: 652414.891'
EASTING: 928860.003
STATION: 2060+00
OFFSET: 150.0 L
ELEVATION: 17.5 FT
DATE: 9/24/14





VERTICAL SCALE: 0 2 10
HORIZONTAL SCALE: N.T.S.

LEGEND:

- ASPHALT
- FINE SAND
- SILTY SAND
- ▽ GROUND WATER LEVEL AT BORING COMPLETION
- B.T. BORING TERMINATED
- N: STANDARD PENETRATION RESISTANCE (AUTOMATIC HAMMER)
- W.C.: WATER CONTENT
- >4: PERCENT PASSING #4 SIEVE
- >200: PERCENT PASSING #200 SIEVE
- HAMMER WEIGHT = 140 LB
- DROP HEIGHT = 30 IN

THE TEST BORINGS WERE PERFORMED BY HRES USING A CME-55 TRUCK MOUNTED RIG.

GRANULAR MATERIALS:

RELATIVE DENSITY	SPT N-VALUE (BLOWS/12 INCHES)
VERY LOOSE	<3
LOOSE	3-8
MEDIUM DENSE	8-24
DENSE	24-40
VERY DENSE	>40

SILTS AND CLAYS:

CONSISTENCY	SPT N-VALUE (BLOWS/12 INCHES)
VERY SOFT	<1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	>24

ENVIRONMENTAL CLASSIFICATION

SUBSTRUCTURE:
STEEL: MODERATELY AGGRESSIVE
CONCRETE: MODERATELY AGGRESSIVE
SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

Resistivity ohms-cm	pH	Sulfates ppm	Chlorides ppm
1,856-2,220	7.4-7.6	25-30	35-58

NOTE: CORROSION TEST DATA FROM BORINGS B-2 AND B-3

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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DRAWN BY: ME 12-14
CHECKED BY: NH 12-14
DESIGNED BY: NH 12-14
CHECKED BY: HRR 12-14

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

#USER# #DATE# #TIME# #FILE#

SHEET TITLE: REPORT OF CORE BORINGS A-42

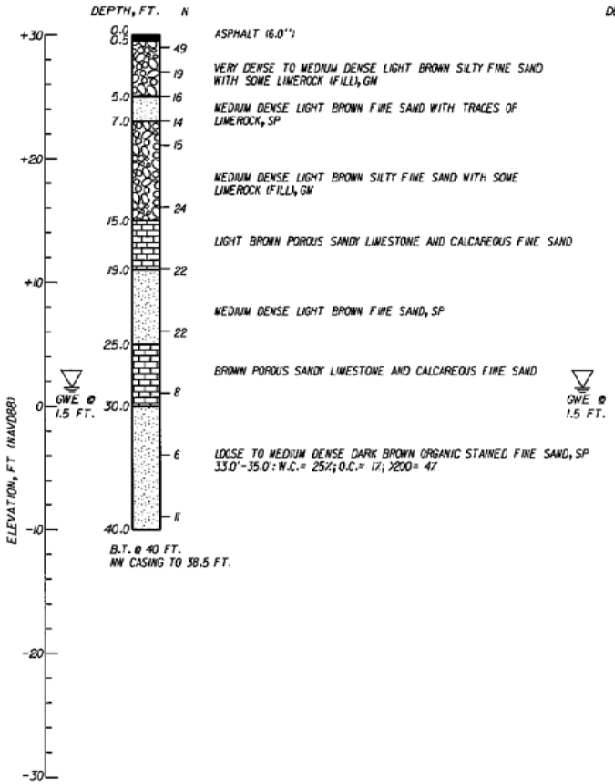
PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

REF. DWG. NO.

SHEET NO.

WB-2072L

NORTHING: 653631.523
EASTING: 928599.473
STATION: 2072+00
OFFSET: 100.0 L
ELEVATION: 30.0 FT
DATE: 9/25/14



ASPHALT (6.0")

VERY DENSE TO MEDIUM DENSE LIGHT BROWN SILTY FINE SAND WITH SOME LIMEROCK (FILL), GM

MEDIUM DENSE LIGHT BROWN FINE SAND WITH TRACES OF LIMEROCK, SP

MEDIUM DENSE LIGHT BROWN SILTY FINE SAND WITH SOME LIMEROCK (FILL), GM

LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND

MEDIUM DENSE LIGHT BROWN FINE SAND, SP

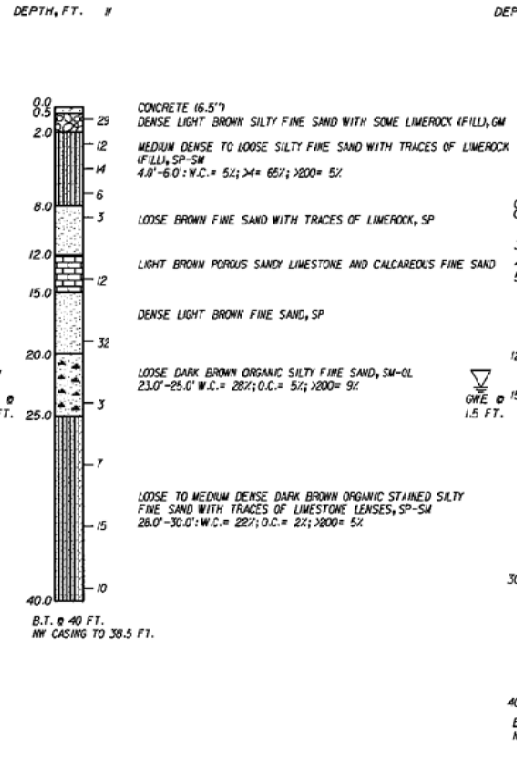
BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND

LOOSE TO MEDIUM DENSE DARK BROWN ORGANIC STAINED FINE SAND, SP
33.0'-35.0': W.C.= 25%; O.C.= 1%; >200= 4%

B.T. @ 40 FT.
NW CASING TO 38.5 FT.

WB-2076L

NORTHING: 654035.024
EASTING: 928601.819
STATION: 2076+00
OFFSET: 95.0 L
ELEVATION: 24.2 FT
DATE: 9/25/14



CONCRETE (6.5")
DENSE LIGHT BROWN SILTY FINE SAND WITH SOME LIMEROCK (FILL), GM

MEDIUM DENSE TO LOOSE SILTY FINE SAND WITH TRACES OF LIMEROCK (FILL), SP-SM
4.0'-6.0': W.C.= 5%; >4= 65%; >200= 5%

LOOSE BROWN FINE SAND WITH TRACES OF LIMEROCK, SP

LIGHT BROWN POROUS SANDY LIMESTONE AND CALCAREOUS FINE SAND

DENSE LIGHT BROWN FINE SAND, SP

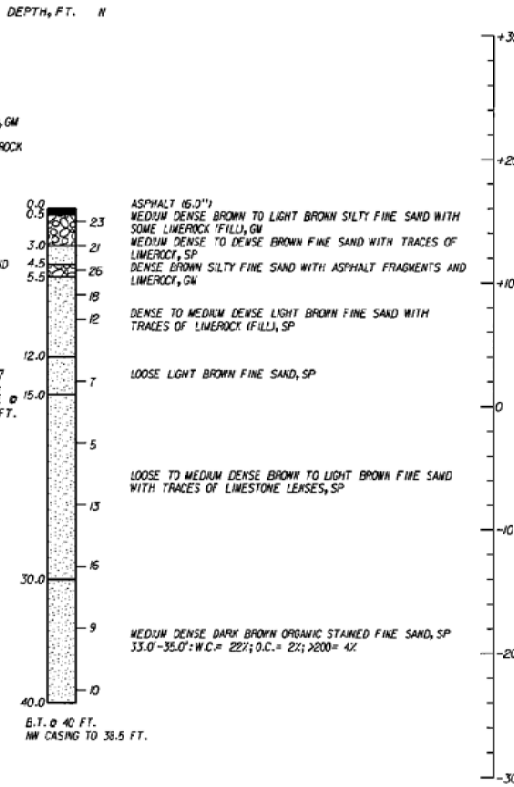
LOOSE DARK BROWN ORGANIC SILTY FINE SAND, SM-OL
23.0'-25.0' W.C.= 282%; O.C.= 5%; >200= 9%

LOOSE TO MEDIUM DENSE DARK BROWN ORGANIC STAINED SILTY FINE SAND WITH TRACES OF LIMESTONE LENSES, SP-SM
28.0'-30.0': W.C.= 22%; O.C.= 2%; >200= 5%

B.T. @ 40 FT.
NW CASING TO 38.5 FT.

WB-2080L

NORTHING: 654431.223
EASTING: 928599.290
STATION: 2080+00
OFFSET: 90.0 L
ELEVATION: 16.0 FT
DATE: 9/25/14



ASPHALT (6.0")
MEDIUM DENSE BROWN TO LIGHT BROWN SILTY FINE SAND WITH SOME LIMEROCK (FILL), GM
MEDIUM DENSE TO DENSE BROWN FINE SAND WITH TRACES OF LIMEROCK, SP
DENSE BROWN SILTY FINE SAND WITH ASPHALT FRAGMENTS AND LIMEROCK, GM

DENSE TO MEDIUM DENSE LIGHT BROWN FINE SAND WITH TRACES OF LIMEROCK (FILL), SP

LOOSE LIGHT BROWN FINE SAND, SP

LOOSE TO MEDIUM DENSE BROWN TO LIGHT BROWN FINE SAND WITH TRACES OF LIMESTONE LENSES, SP

MEDIUM DENSE DARK BROWN ORGANIC STAINED FINE SAND, SP
33.0'-35.0': W.C.= 22%; O.C.= 2%; >200= 4%

B.T. @ 40 FT.
NW CASING TO 38.5 FT.

VERTICAL SCALE: 0 2 10
HORIZONTAL SCALE: N.T.S.

LEGEND:

- ASPHALT
- CONCRETE
- LIMEROCK FILL
- SILTY SAND
- FINE SAND
- ORGANIC FINE SAND
- LIMESTONE WITH SOME FINE SAND OR AND FINE SAND
- GROUND WATER LEVEL AT BORING COMPLETION
- B.T. BORING TERMINATED
- N: STANDARD PENETRATION RESISTANCE (AUTOMATIC HAMMER)
- W.C.: WATER CONTENT
- O.C.: ORGANIC CONTENT
- >4: PERCENT PASSING #4 SIEVE
- >200: PERCENT PASSING #200 SIEVE
- HAMMER WEIGHT = 140 LB
- DROP HEIGHT = 30 IN

THE TEST BORINGS WERE PERFORMED BY HRES USING A CME-55 TRUCK MOUNTED RIG.

GRANULAR MATERIALS:

RELATIVE DENSITY	SPT N-VALUE (BLOWS/12 INCHES)
VERY LOOSE	<3
LOOSE	3-8
MEDIUM DENSE	8-24
DENSE	24-40
VERY DENSE	>40

SILTS AND CLAYS:

CONSISTENCY	SPT N-VALUE (BLOWS/12 INCHES)
VERY SOFT	<1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	>24

ENVIRONMENTAL CLASSIFICATION

SUBSTRUCTURE:
STEEL: MODERATELY AGGRESSIVE
CONCRETE: MODERATELY AGGRESSIVE
SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

Resistivity ohms-cm	pH	Sulfates ppm	Chlorides ppm
1,362-3,433	7.5	30-77	25-53

NOTE: CORROSION TEST DATA FROM BORING B-5 AND SAMPLE B-2100

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 6G15-23.003, F.A.C.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HR ENGINEERING SERVICES, INC.
Hernando R. Ramos
P.E. License No. 42045
7815 NW 72nd Avenue Medley, Florida 33166
Phone: (305) 888-9880 - Fax: (305) 885-8770
Certificate of Authorization No. 7991

DRAWN BY: ME 12-14
CHECKED BY: MH 12-14
DESIGNED BY: MH 12-14
CHECKED BY: HRR 12-14

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SHEET TITLE: REPORT OF CORE BORINGS

A-43

REF. DWG. NO.

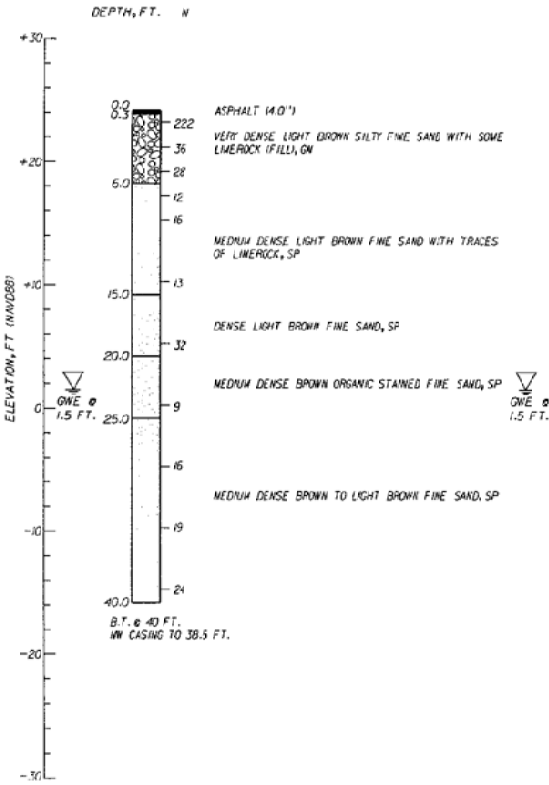
SHEET NO.

PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

#USER# #DATE# #TIME# #FILE#

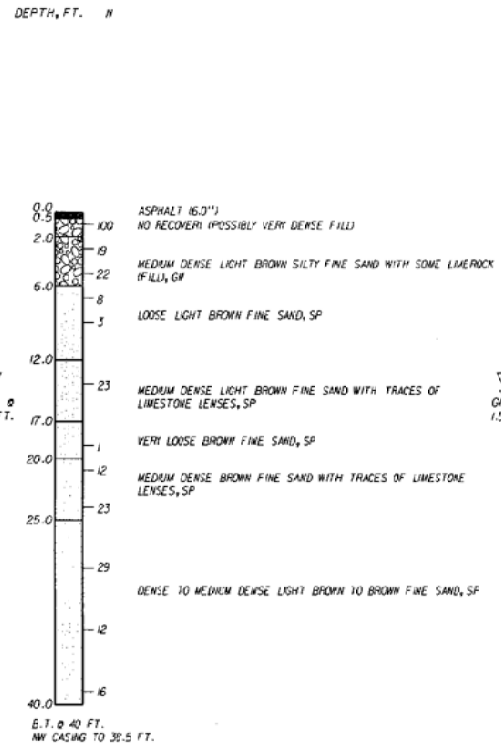
WB-2076R

NORTHING: 654036.579
EASTING: 928788.510
STATION: 2076+00
OFFSET: 95.0 R
ELEVATION: 24.2 FT
DATE: 9/02/14



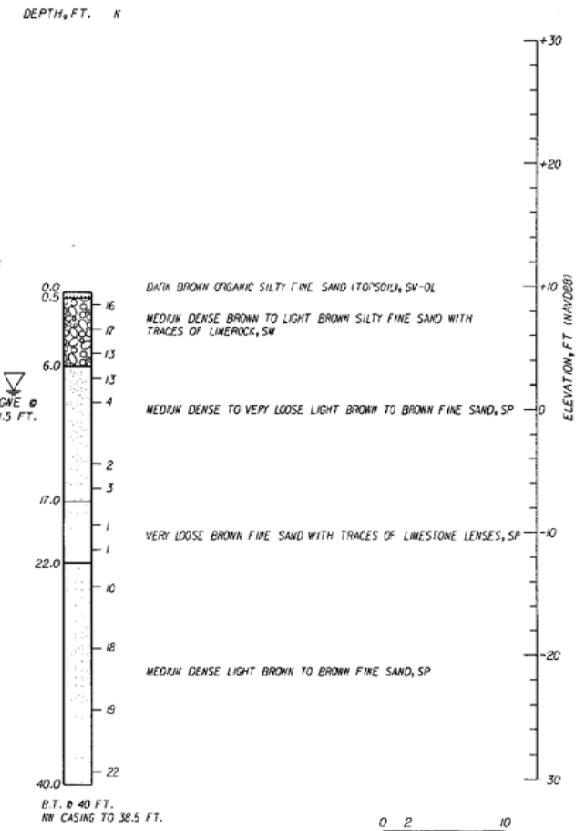
WB-2080R

NORTHING: 654437.130
EASTING: 928784.310
STATION: 2080+00
OFFSET: 90.0 R
ELEVATION: 16.0 FT
DATE: 9/02/14



WB-2084R

NORTHING: 654834.057
EASTING: 928781.775
STATION: 2084+00
OFFSET: 100.0 R
ELEVATION: 9.5 FT
DATE: 9/02/14



VERTICAL SCALE: 0 2 10
HORIZONTAL SCALE: N.T.S.

LEGEND:

- ASPHALT
- FINE SAND
- LIMEROCK FILL
- GROUND WATER LEVEL AT BORING COMPLETION
- B.T. BORING TERMINATED
- N: STANDARD PENETRATION RESISTANCE (AUTOMATIC HAMMER)

HAMMER WEIGHT = 140 LB

DROP HEIGHT = 30 IN

THE TEST BORINGS WERE PERFORMED BY HREI USING A CME-55 TRUCK MOUNTED RIG.

GRANULAR MATERIALS:

RELATIVE DENSITY	SPT N-VALUE (BLOWS/12 INCHES)
VERY LOOSE	<3
LOOSE	3-8
MEDIUM DENSE	8-24
DENSE	24-40
VERY DENSE	>40

SILTS AND CLAYS:

CONSISTENCY	SPT N-VALUE (BLOWS/12 INCHES)
VERY SOFT	<1
SOFT	1-3
FIRM	3-6
STIFF	6-12
VERY STIFF	12-24
HARD	>24

ENVIRONMENTAL CLASSIFICATION

SUBSTRUCTURE:
STEEL: MODERATELY AGGRESSIVE
CONCRETE: MODERATELY AGGRESSIVE
SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE

Resistivity ohms-cm	pH	Sulfates ppm	Chlorides ppm
1,852-3,435	7.5	39-77	25-55

NOTE: CORROSION TEST DATA FROM BORING B-5 AND SAMPLE B-2100

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 6A15-23.003, F.A.C.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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Certificate of Authorization No. 799

DRAWN BY: ME 12-14
CHECKED BY: NH 12-14
DESIGNED BY: NH 12-14
CHECKED BY: HRI 12-14

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	433108-4-52-01

SHEET TITLE: REPORT OF CORE BORINGS

SHEET NO.: A-44

PROJECT NAME: I-95 CDC, FROM SOUTH OF DAVIE BOULEVARD TO NORTH OF WEST COMMERCIAL BOULEVARD - PHASE 3A-1

%USER% %DATE% %TIME% %FILE%

APPENDIX B

SUMMARY OF LABORATORY TEST RESULTS - STRUCTURES
I-95 CDC, FROM SOUTH OF DAVIE BLVD. TO NORTH OF WEST COMMERCIAL BLVD. – PHASE 3A-1
FLORIDA DEPARTMENT OF TRANSPORTATION - DISTRICT 4
FINANCIAL PROJECT ID No: 433108-4-52-01
BROWARD COUNTY- FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT No. HR12-891R
DECEMBER 31, 2014

Test Boring No.	USCS Class.	Sample Depth (ft)	Grain Size Distribution - Percent Passing								Organic Loss of Ignition, %	Moisture Content %	Material in Sample, %		
			3/4"	3/8"	No. 4	No. 10	No. 40	No. 60	No. 100	No. 200			Gravel	Sand	Fines
B-1	SM	2.0-4.0	100	83	76	68	57	40	22	13	-	9	24	63	13
B-1	ML	13.0-15.0	-	-	-	-	-	-	-	78	-	44	-	-	78
B-1	ML	16.0-18.0	-	-	-	-	-	-	-	99	-	60	-	-	99
B-1	ML	18.0-20.0	-	-	-	-	-	-	-	64	-	43	-	-	64
B-1	ML	21.0-23.0	-	-	-	-	-	-	-	77	-	50	-	-	77
B-1	ML	23.0-25.0	-	-	-	-	-	-	-	92	-	70	-	-	92
B-2	SP-SM	4.0-6.0	83	80	74	68	52	39	25	10	-	7	26	64	10
B-3	GP-GM	6.0-8.0	47	37	32	27	18	12	8	5	-	6	68	27	5
B-4	SP-SM	0.3-2.0	100	87	82	78	67	42	16	8	-	5	18	74	8
WB-2060L	SM	0.4-1.0	100	89	76	61	42	36	25	18	-	8	24	58	18

SUMMARY OF LABORATORY TEST RESULTS - STRUCTURES
I-95 CDC, FROM SOUTH OF DAVIE BLVD. TO NORTH OF WEST COMMERCIAL BLVD. – PHASE 3A-1
FLORIDA DEPARTMENT OF TRANSPORTATION - DISTRICT 4
FINANCIAL PROJECT ID No: 433108-4-52-01
BROWARD COUNTY- FLORIDA
HR ENGINEERING SERVICES, INC.
HRES PROJECT No. HR12-891R
DECEMBER 31, 2014

Test Boring No.	USCS Class.	Sample Depth (ft)	Grain Size Distribution - Percent Passing								Organic Loss of Ignition, %	Moisture Content %	Material in Sample, %		
			3/4"	3/8"	No. 4	No. 10	No. 40	No. 60	No. 100	No. 200			Gravel	Sand	Fines
B-5	SP-SM	6.0-8.0	75	68	63	57	49	37	17	5	-	13	37	58	5
WB-2072L	SP	33.0-35.0	-	-	-	-	-	-	-	4	1	25	-	-	4
WB-2076L	SP-SM	4.0-6.0	81	71	65	60	51	36	16	5	-	5	35	60	5
WB-2076L	SM-OL	23.0-25.0	-	-	-	-	-	-	-	9	5	28	-	-	9
WB-2076L	SP-SM	28.0-30.0	-	-	-	-	-	-	-	5	2	22	-	-	5
WB-2080L	SP	33.0-35.0	-	-	-	-	-	-	-	4	2	22	-	-	4
GB-2108L	SP-SM	2.0-3.0	89	78	71	66	57	42	17	11	-	10	29	60	11
GB-2108L	SP	23.0-25.0	-	-	-	-	-	-	-	4	2	25	-	-	4
GB-2108R	SP	2.0-4.0	95	93	90	88	81	54	9	3	-	6	10	87	3
WB-2126L	SP	2.0-3.0	92	82	69	57	38	24	9	4	-	9	31	65	4

LABORATORY TESTING PROCEDURES

Percent Fines Content – In this test, the sample is dried and then washed over a # 200 mesh sieve. The percentage of soil by weight passing the sieve is the percentage of fines or portion of the sample in the silt and clay size range. This test was conducted in general accordance with ASTM D-1140.

Percent Organics (Organic Loss on Ignition) – The amount of organic material in a sample is determined in this test. The sample is first dried and weighed, then ignited and reweighed. The amount of organic material is expressed as a percentage.

Water Content – The water content is the ratio, expressed as a percentage of the weight of water in a given mass of soil to the weight of the soil particles. This test was conducted in general accordance with ASTM D-2216.

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Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: B-1 **Sample No.:** 2 **Depth:** 2.0'-4.0'

Date: 11/21/14

Technician:			H.C.			
Date Sample Placed in Oven:			11/21/2014			
Time in / Out of Oven :	11/21/14	4:00 PM	TO	11/22/14	4:00 PM	
Wt. of Wet Soil + Can, grams			295.80			
Wt. of Dry Soil + Can, grams			271.70			
Wt. of Can, grams No. 700			8.40			
Wt. of Dry Soil, grams			263.30			
Wt. of Moisture, grams			24.10			
Water Content, w%			9%			
Wt. of Dry Soil + Can Before Wash, grams			271.70			
Wt. of Can, grams No. 700			8.40			
Wt. of Dry Soil Before Wash, grams			263.30			
Time in / Out of Oven :	11/24/14	2:00 PM	TO	11/25/14	2:00 PM	
Wt. of Dry Soil + Can After Wash, grams			238.50			
Wt. of Dry Soil After Wash, grams			230.10			
Total Loss, grams			33.20			
Percent Finer Than No. 200 Sieve			13%			

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

SM

HR ENGINEERING SERVICES, INC.

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Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 Project No.: HR12-891R

Boring No.: B-1 Sample No.: 2 Depth: 2.0'-4.0'

Date: 11/25/2014 Tested By: H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	47.20	47.20	17	83	
4	4.76	17.20	64.40	24	76	USCS Classification:
10	2.00	19.90	84.30	32	68	
40	0.420	31.50	115.80	43	57	SM
60	0.250	44.10	159.90	60	40	
100	0.149	46.80	206.70	78	22	
200	0.074	23.20	229.90	87	13	
PAN						

B-13

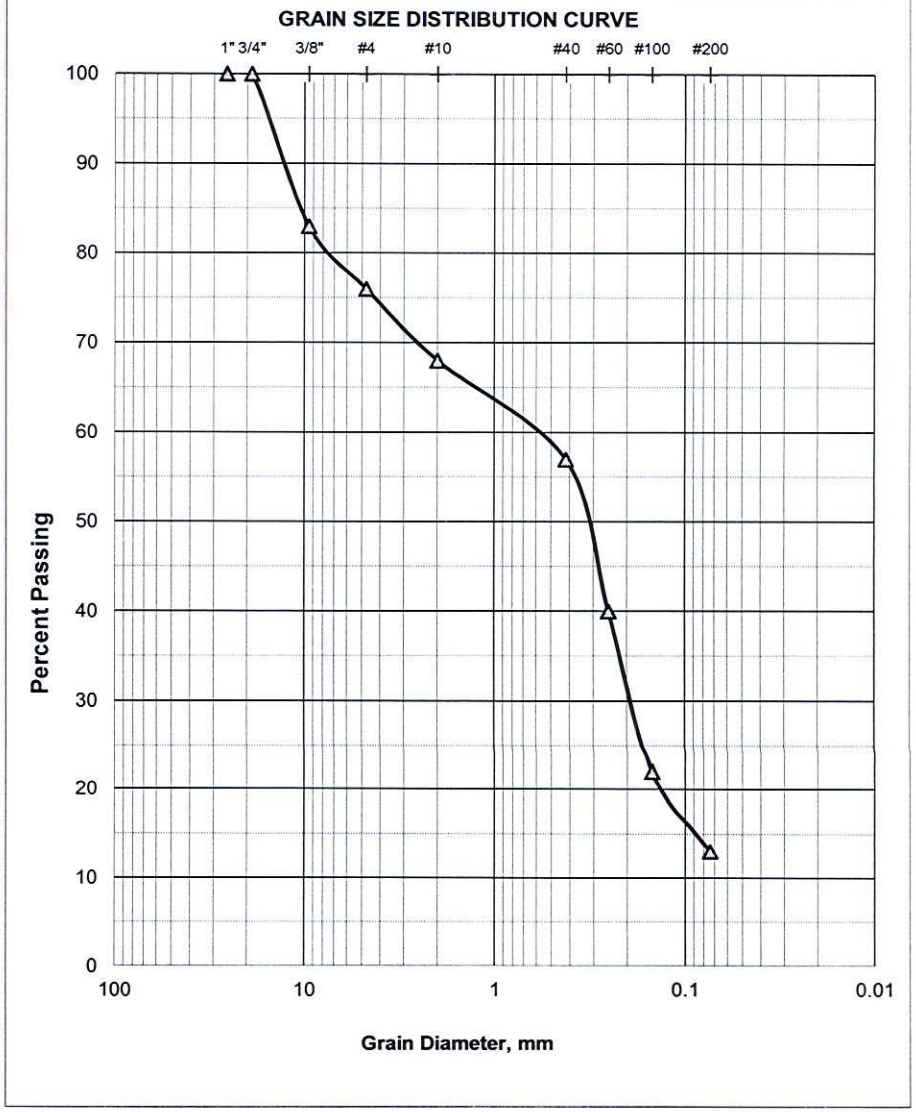
Total Dry Weight Before Wash, (gr) =	263.30
Percent Finer than No. 200 Sieve by Wash Method=	13%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	24
Coarse Sand	>No. 4-≤ No. 40	19
Fine Sand	>No. 40-≤ No. 200	44
Silt and Clays	>No. 200	13
Water Content		9%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



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REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: B-1 **Sample No.:** 7 **Depth:** 13.0'-15.0'

Date: 09/02/14

Technician:	H.C.					
Date Sample Placed in Oven:	09/04/2014					
Time in / Out of Oven :	09/04/14	3:30 PM	TO	09/05/14	3:30 PM	
Wt. of Wet Soil + Can, grams	279.10					
Wt. of Dry Soil + Can, grams	196.80					
Wt. of Can, grams No. 903	8.30					
Wt. of Dry Soil, grams	188.50					
Wt. of Moisture, grams	82.30					
Water Content, w%	44%					
Wt. of Dry Soil + Can Before Wash, grams	196.80					
Wt. of Can, grams No. 903	8.30					
Wt. of Dry Soil Before Wash, grams	188.50					
Time in / Out of Oven :	09/05/14	5:00 PM	TO	09/06/14	5:00 PM	
Wt. of Dry Soil + Can After Wash, grams	48.90					
Wt. of Dry Soil After Wash, grams	40.60					
Total Loss, grams	147.90					
Percent Finer Than No. 200 Sieve	78%					

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

ML

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REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: B-1 **Sample No.:** 8 **Depth:** 16.0'-18.0'

Date: 11/07/14

Technician:			H.C.			
Date Sample Placed in Oven:			11/09/2014			
Time in / Out of Oven :	11/09/14	2:00 PM	TO	11/10/14	2:00 PM	
Wt. of Wet Soil + Can, grams			389.20			
Wt. of Dry Soil + Can, grams			247.10			
Wt. of Can, grams No. 715			9.00			
Wt. of Dry Soil, grams			238.10			
Wt. of Moisture, grams			142.10			
Water Content, w%			60%			
Wt. of Dry Soil + Can Before Wash, grams			247.10			
Wt. of Can, grams No. 715			9.00			
Wt. of Dry Soil Before Wash, grams			238.10			
Time in / Out of Oven :	11/10/14	3:00 PM	TO	11/11/14	3:00 PM	
Wt. of Dry Soil + Can After Wash, grams			11.80			
Wt. of Dry Soil After Wash, grams			2.80			
Total Loss, grams			235.30			
Percent Finer Than No. 200 Sieve			99%			

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

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REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: B-1 **Sample No.:** 9 **Depth:** 18.0'-20.0'

Date: 11/07/14

Technician:	H.C.				
Date Sample Placed in Oven:	11/09/2014				
Time in / Out of Oven :	11/09/14	2:30 PM	TO	11/10/14	2:30 PM
Wt. of Wet Soil + Can, grams	296.70				
Wt. of Dry Soil + Can, grams	210.70				
Wt. of Can, grams No. 750	9.10				
Wt. of Dry Soil, grams	201.60				
Wt. of Moisture, grams	86.00				
Water Content, w%	43%				
Wt. of Dry Soil + Can Before Wash, grams	210.70				
Wt. of Can, grams No. 750	9.10				
Wt. of Dry Soil Before Wash, grams	201.60				
Time in / Out of Oven :	11/10/14	3:00 PM	TO	11/11/14	3:00 PM
Wt. of Dry Soil + Can After Wash, grams	81.40				
Wt. of Dry Soil After Wash, grams	72.30				
Total Loss, grams	129.30				
Percent Finer Than No. 200 Sieve	64%				

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

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REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: B-1 **Sample No.:** 10 **Depth:** 21.0'-23.0'

Date: 09/02/14

Technician:		H.C.				
Date Sample Placed in Oven:		09/04/2014				
Time in / Out of Oven :		09/04/14	3:30 PM	TO	09/05/14	3:30 PM
Wt. of Wet Soil + Can, grams		348.70				
Wt. of Dry Soil + Can, grams		235.20				
Wt. of Can, grams	**No. 904**	8.40				
Wt. of Dry Soil, grams		226.80				
Wt. of Moisture, grams		113.50				
Water Content, w%		50%				
Wt. of Dry Soil + Can Before Wash, grams		235.20				
Wt. of Can, grams	**No. 904**	8.40				
Wt. of Dry Soil Before Wash, grams		226.80				
Time in / Out of Oven :		09/05/14	5:00 PM	TO	09/06/14	5:00 PM
Wt. of Dry Soil + Can After Wash, grams		60.60				
Wt. of Dry Soil After Wash, grams		52.20				
Total Loss, grams		174.60				
Percent Finer Than No. 200 Sieve		77%				

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
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REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: B-1 **Sample No.:** 11 **Depth:** 23.0'-25.0'

Date: 11/07/14

Technician:			H.C.			
Date Sample Placed in Oven:			11/09/2014			
Time in / Out of Oven :	11/09/14	2:30 PM	TO	11/10/14	2:30 PM	
Wt. of Wet Soil + Can, grams			261.40			
Wt. of Dry Soil + Can, grams			157.50			
Wt. of Can, grams No. 751			9.10			
Wt. of Dry Soil, grams			148.40			
Wt. of Moisture, grams			103.90			
Water Content, w%			70%			
Wt. of Dry Soil + Can Before Wash, grams			157.50			
Wt. of Can, grams No. 751			9.10			
Wt. of Dry Soil Before Wash, grams			148.40			
Time in / Out of Oven :	11/10/14	3:00 PM	TO	11/11/14	3:00 PM	
Wt. of Dry Soil + Can After Wash, grams			21.60			
Wt. of Dry Soil After Wash, grams			12.50			
Total Loss, grams			135.90			
Percent Finer Than No. 200 Sieve			92%			

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
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USCS Classification:

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REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: B-3 **Sample No.:** 4 **Depth:** 6.0'-8.0'

Date: 11/21/14

Technician:			H.C.			
Date Sample Placed in Oven:			11/21/2014			
Time in / Out of Oven :	11/21/14	4:00 PM	TO	11/22/14	4:00 PM	
Wt. of Wet Soil + Can, grams			149.80			
Wt. of Dry Soil + Can, grams			141.30			
Wt. of Can, grams No. 702			8.40			
Wt. of Dry Soil, grams			132.90			
Wt. of Moisture, grams			8.50			
Water Content, w%			6%			
Wt. of Dry Soil + Can Before Wash, grams			141.30			
Wt. of Can, grams No. 702			8.40			
Wt. of Dry Soil Before Wash, grams			132.90			
Time in / Out of Oven :	11/24/14	2:00 PM	TO	11/25/14	2:00 PM	
Wt. of Dry Soil + Can After Wash, grams			135.30			
Wt. of Dry Soil After Wash, grams			126.90			
Total Loss, grams			6.00			
Percent Finer Than No. 200 Sieve			5%			

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

GP-GM

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 Project No.: HR12-891R
Boring No.: B-3 Sample No.: 4 Depth: 6.0'-8.0'
Date: 11/25/2014 Tested By: H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	70.70	70.70	53	47	
3/8"	9.51	13.20	83.90	63	37	USCS Classification:
4	4.76	7.50	91.40	68	32	
10	2.00	6.90	98.30	73	27	
40	0.420	11.20	109.50	82	18	GP-GM
60	0.250	7.90	117.40	88	12	
100	0.149	6.00	123.40	92	8	
200	0.074	3.40	126.80	95	5	
PAN						

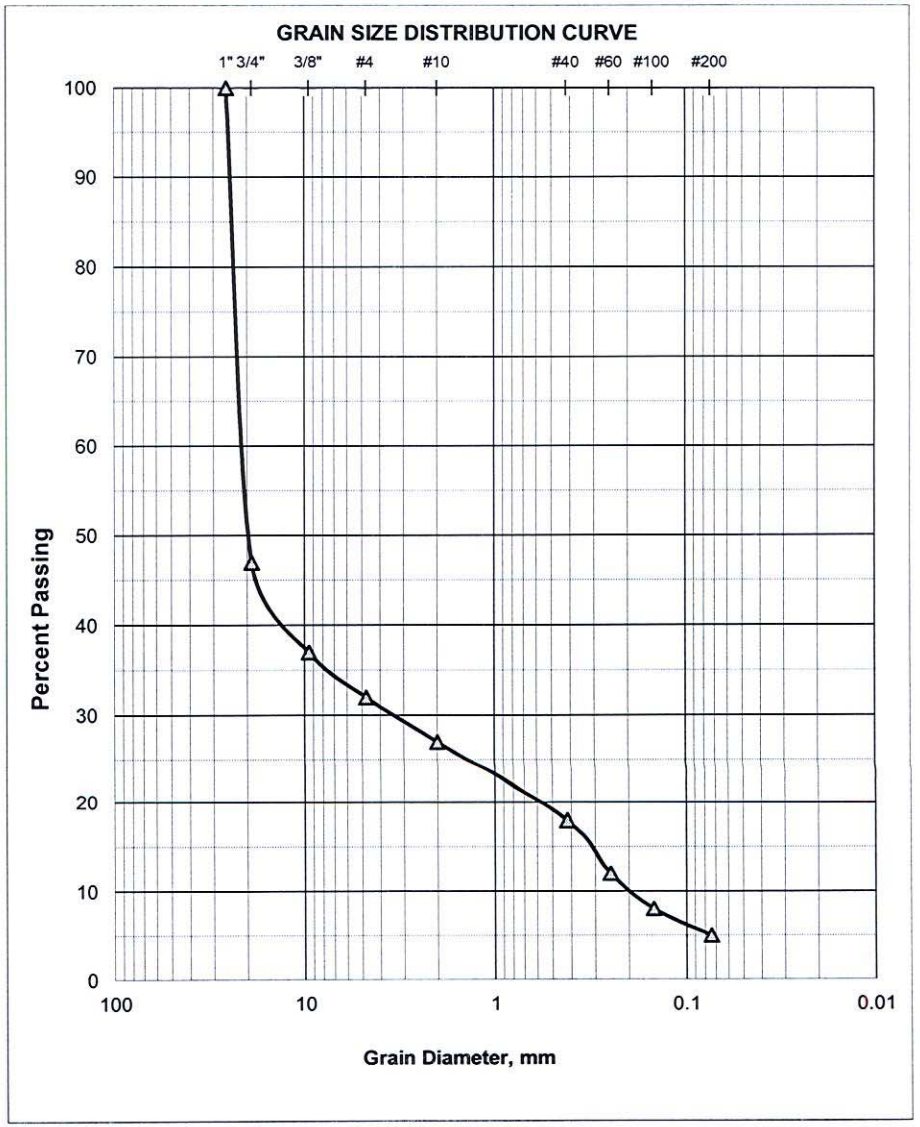
Total Dry Weight Before Wash, (gr) =	132.90
Percent Finer than No. 200 Sieve by Wash Method=	5%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	68
Coarse Sand	>No. 4-≤ No. 40	14
Fine Sand	>No. 40-≤ No. 200	13
Silt and Clays	>No. 200	5
Water Content		6%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



B-20

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: B-2 **Sample No.:** 3 **Depth:** 4.0'-6.0'

Date: 11/21/14

Technician:			H.C.			
Date Sample Placed in Oven:			11/21/2014			
Time in / Out of Oven :	11/21/14	4:00 PM	TO	11/22/14	4:00 PM	
Wt. of Wet Soil + Can, grams			237.90			
Wt. of Dry Soil + Can, grams			222.60			
Wt. of Can, grams No. 701			9.10			
Wt. of Dry Soil, grams			213.50			
Wt. of Moisture, grams			15.30			
Water Content, w%			7%			
Wt. of Dry Soil + Can Before Wash, grams			222.60			
Wt. of Can, grams No. 701			9.10			
Wt. of Dry Soil Before Wash, grams			213.50			
Time in / Out of Oven :	11/24/14	2:00 PM	TO	11/25/14	2:00 PM	
Wt. of Dry Soil + Can After Wash, grams			201.00			
Wt. of Dry Soil After Wash, grams			191.90			
Total Loss, grams			21.60			
Percent Finer Than No. 200 Sieve			10%			

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

SP-SM

HR ENGINEERING SERVICES, INC.
7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R
Boring No.: B-2 **Sample No.:** 3 **Depth:** 4.0'-6.0'
Date: 11/25/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	38.10	38.10	17	83	
3/8"	9.51	5.60	43.70	20	80	
4	4.76	12.50	56.20	26	74	USCS Classification:
10	2.00	12.40	68.60	32	68	
40	0.420	35.20	103.80	48	52	SP-SM
60	0.250	26.50	130.30	61	39	
100	0.149	31.90	162.20	75	25	
200	0.074	29.60	191.80	90	10	
PAN						

B-22

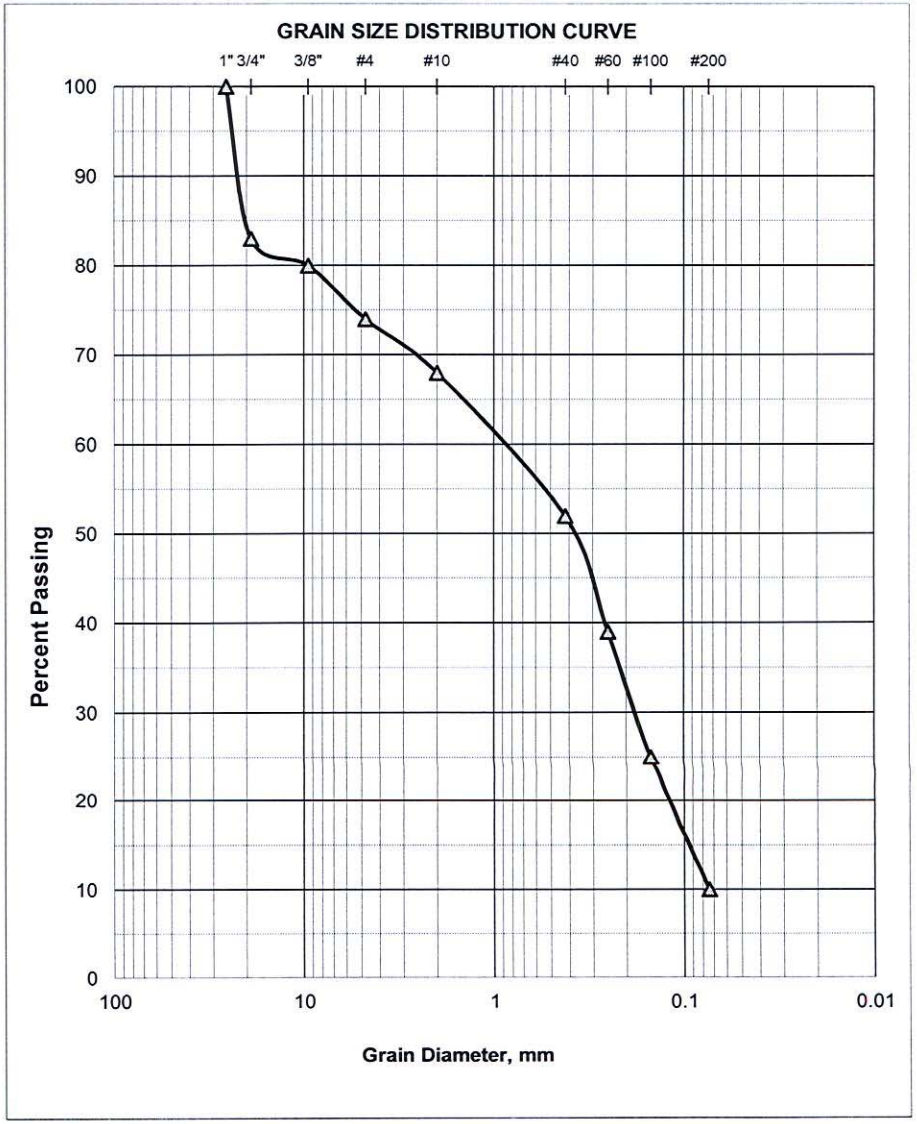
Total Dry Weight Before Wash, (gr) =	213.50
Percent Finer than No. 200 Sieve by Wash Method=	10%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	26
Coarse Sand	>No. 4-≤ No. 40	22
Fine Sand	>No. 40-≤ No. 200	42
Silt and Clays	>No. 200	10
Water Content		7%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

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REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: B-4 **Sample No.:** 1B **Depth:** 0.3'-2.0'

Date: 11/21/14

Technician:	H.C.
Date Sample Placed in Oven:	11/21/2014
Time in / Out of Oven :	11/21/14 4:00 PM TO 11/22/14 4:00 PM
Wt. of Wet Soil + Can, grams	260.30
Wt. of Dry Soil + Can, grams	248.10
Wt. of Can, grams No. 703	9.10
Wt. of Dry Soil, grams	239.00
Wt. of Moisture, grams	12.20
Water Content, w%	5%
Wt. of Dry Soil + Can Before Wash, grams	248.10
Wt. of Can, grams No. 703	9.10
Wt. of Dry Soil Before Wash, grams	239.00
Time in / Out of Oven :	11/24/14 2:00 PM TO 11/25/14 2:00 PM
Wt. of Dry Soil + Can After Wash, grams	228.30
Wt. of Dry Soil After Wash, grams	219.20
Total Loss, grams	19.80
Percent Finer Than No. 200 Sieve	8%

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

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HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R
Boring No.: B-4 **Sample No.:** 1B **Depth:** 0.3'-2.0'
Date: 11/25/2014 **Tested By:** H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	31.60	31.60	13	87	
4	4.76	13.30	44.90	18	82	USCS Classification:
10	2.00	9.90	54.80	22	78	
40	0.420	26.10	80.90	33	67	SP-SM
60	0.250	57.80	138.70	58	42	
100	0.149	64.10	202.80	84	16	
200	0.074	17.00	219.80	92	8	
PAN						

B-24

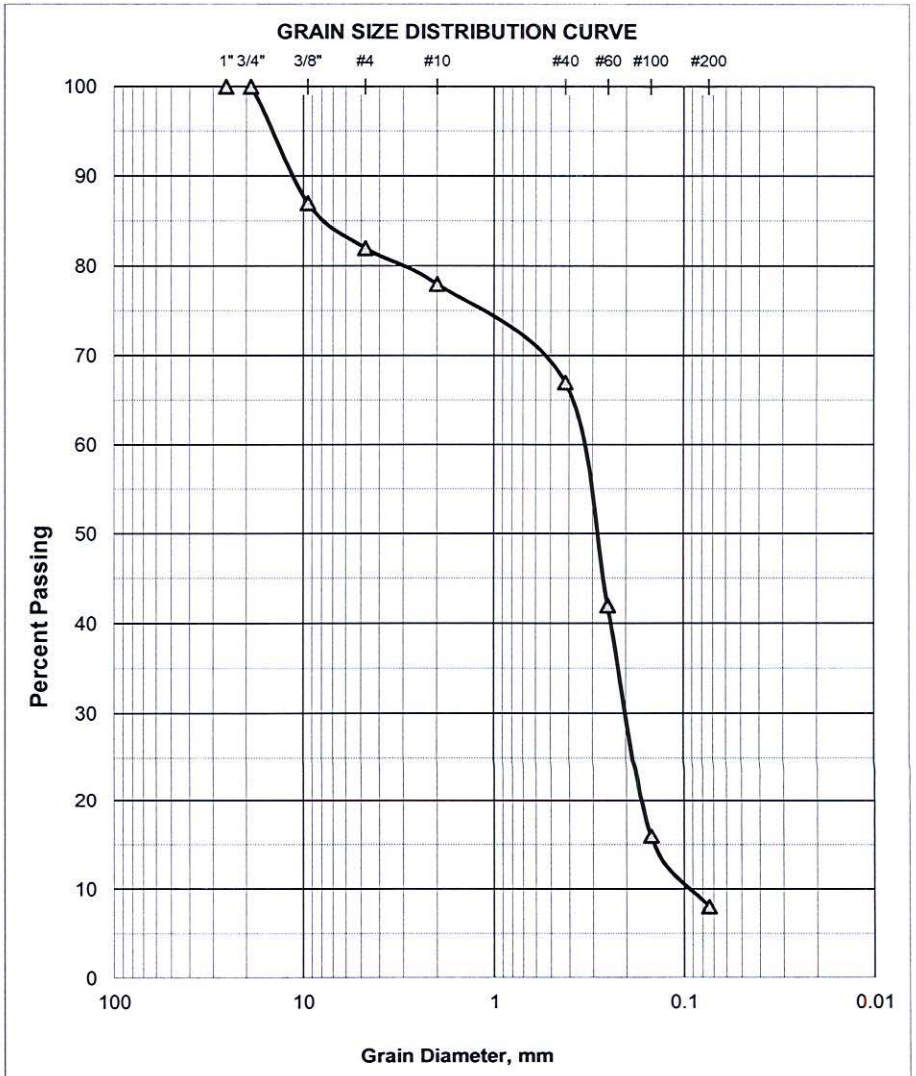
Total Dry Weight Before Wash, (gr) =	239.00
Percent Finer than No. 200 Sieve by Wash Method=	8%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	18
Coarse Sand	>No. 4-≤ No. 40	15
Fine Sand	>No. 40-≤ No. 200	59
Silt and Clays	>No. 200	8
Water Content		5%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: WB-2060L **Sample No.:** 1A **Depth:** 0.4'-1.0'

Date: 11/21/14

Technician:	H.C.
Date Sample Placed in Oven:	11/21/2014
Time in / Out of Oven :	11/21/14 6:00 PM TO 11/22/14 6:00 PM
Wt. of Wet Soil + Can, grams	228.20
Wt. of Dry Soil + Can, grams	212.90
Wt. of Can, grams No. 758	9.10
Wt. of Dry Soil, grams	203.80
Wt. of Moisture, grams	15.30
Water Content, w%	8%
Wt. of Dry Soil + Can Before Wash, grams	212.90
Wt. of Can, grams No. 758	9.10
Wt. of Dry Soil Before Wash, grams	203.80
Time in / Out of Oven :	11/25/14 6:00 AM TO 11/26/14 6:00 AM
Wt. of Dry Soil + Can After Wash, grams	176.60
Wt. of Dry Soil After Wash, grams	167.50
Total Loss, grams	36.30
Percent Finer Than No. 200 Sieve	18%

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

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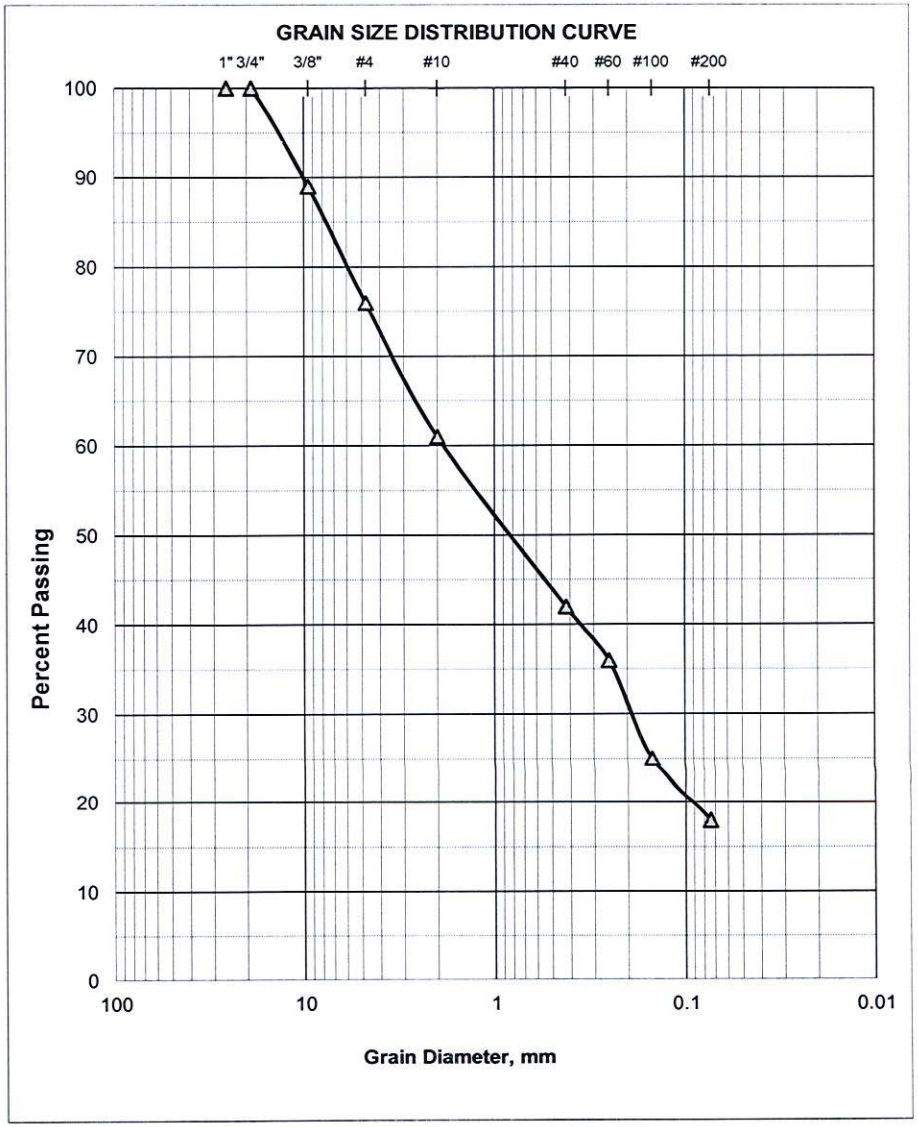
HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1	**Project No.:**	HR12-891R
Boring No.:	WB-2060L	**Sample No.:**	1A
Depth:	0.4'-1.0'		
Date:	11/26/2014	**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	0.00	0.00	0	100	
3/8"	9.51	23.90	23.90	11	89	
4	4.76	26.40	50.30	24	76	USCS Classification:
10	2.00	30.30	80.60	39	61	
40	0.420	39.60	120.20	58	42	SM
60	0.250	12.10	132.30	64	36	
100	0.149	20.90	153.20	75	25	
200	0.074	14.20	167.40	82	18	
PAN						



Total Dry Weight Before Wash, (gr) =	203.80
Percent Finer than No. 200 Sieve by Wash Method=	18%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	24
Coarse Sand	>No. 4-≤ No. 40	34
Fine Sand	>No. 40-≤ No. 200	24
Silt and Clays	>No. 200	18
Water Content		8%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

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HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: B-5 **Sample No.:** 4 **Depth:** 6.0'-8.0'

Date: 11/21/14

Technician:	H.C.					
Date Sample Placed in Oven:	11/21/2014					
Time in / Out of Oven :	11/21/14	4:00 PM	TO	11/22/14	4:00 PM	
Wt. of Wet Soil + Can, grams	295.80					
Wt. of Dry Soil + Can, grams	263.90					
Wt. of Can, grams No. 704	9.00					
Wt. of Dry Soil, grams	254.90					
Wt. of Moisture, grams	31.90					
Water Content, w%	13%					
Wt. of Dry Soil + Can Before Wash, grams	263.90					
Wt. of Can, grams No. 704	9.00					
Wt. of Dry Soil Before Wash, grams	254.90					
Time in / Out of Oven :	11/24/14	2:00 PM	TO	11/25/14	2:00 PM	
Wt. of Dry Soil + Can After Wash, grams	250.40					
Wt. of Dry Soil After Wash, grams	241.40					
Total Loss, grams	13.50					
Percent Finer Than No. 200 Sieve	5%					

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

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HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name:	I-95 CDC Phase 3A-1			**Project No.:**	HR12-891R
Boring No.:	B-5	**Sample No.:**	4	**Depth:**	6.0'-8.0'
Date:	11/25/2014			**Tested By:**	H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	64.60	64.60	25	75	
3/8"	9.51	17.70	82.30	32	68	
4	4.76	12.90	95.20	37	63	USCS Classification:
10	2.00	14.50	109.70	43	57	
40	0.420	21.60	131.30	51	49	SP-SM
60	0.250	31.30	162.60	63	37	
100	0.149	51.20	213.80	83	17	
200	0.074	27.50	241.30	95	5	
PAN						

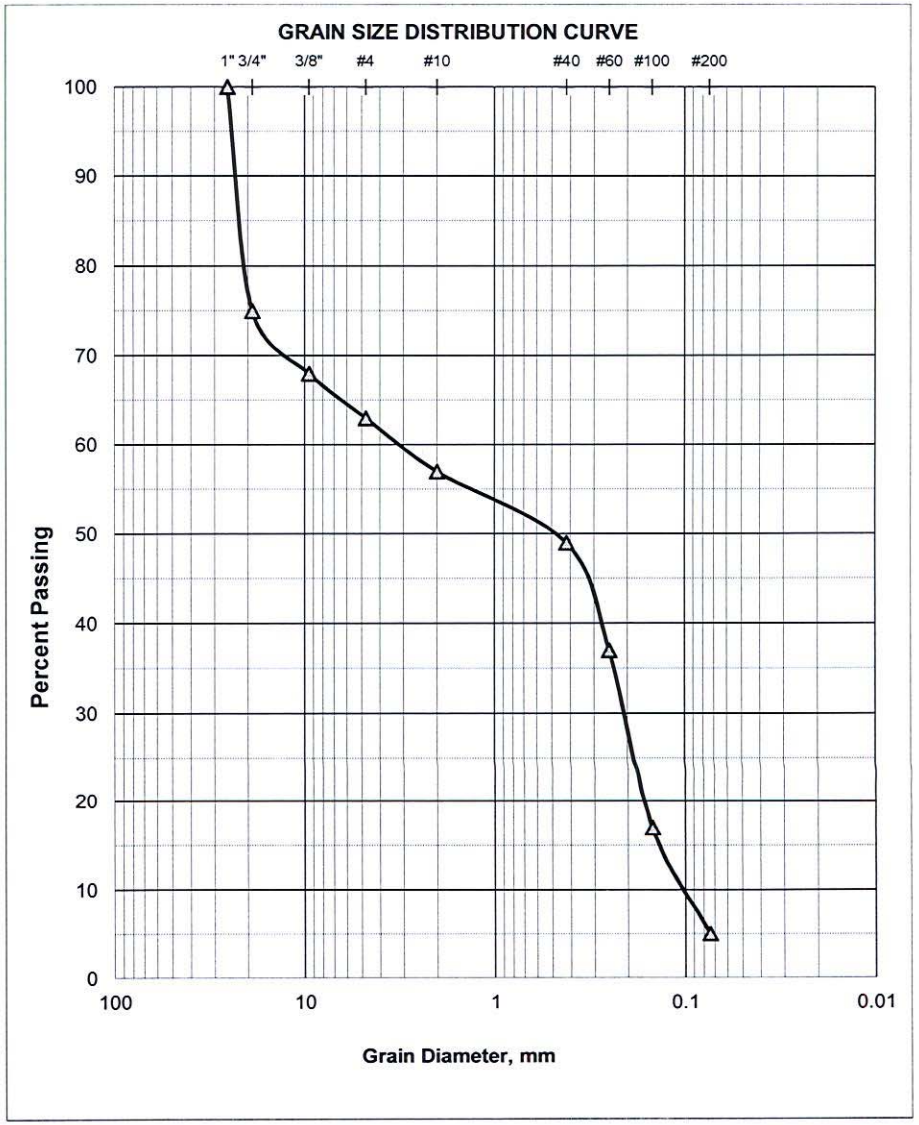
Total Dry Weight Before Wash, (gr) =	**254.90**
Percent Finer than No. 200 Sieve by Wash Method=	**5%**

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	37
Coarse Sand	>No. 4-≤ No. 40	14
Fine Sand	>No. 40-≤ No. 200	44
Silt and Clays	>No. 200	5
Water Content		13%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



B-28

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: WB-2072L **Sample No.:** 10 **Depth:** 33.0'-35.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 5:00 AM TO 11/08/14 5:00 AM
Wt. of Wet Soil + Can, grams	393.30
Wt. of Dry Soil + Can, grams	315.30
Wt. of Can, grams No. 804	9.00
Wt. of Dry Soil, grams	306.30
Wt. of Moisture, grams	78.00
Water Content, w%	25%
Date Sample Placed in Furnace:	11/08/14
Time in / out of furnace (minimum 6 hrs):	11/08/14 5:00 AM TO 11/08/14 11:00 AM
Weight of Crucible & Oven-Dried Sample:	30.50
Weight of Crucible and Sample After Ignition:	30.40
Weight of Crucible: No. 169	18.00
Weight of Oven-Dried Soil:	12.50
Weight Loss due to Ignition:	0.10
Percent Organics:	1%

Moisture Content Test performed in general accordance with ASTM D 2216
Organic Content Test performed in general accordance with ASTM D 2974

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

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HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: WB-2072L **Sample No.:** 10 **Depth:** 33.0'-35.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 5:00 AM TO 11/08/14 5:00 AM
Wt. of Wet Soil + Can, grams	393.30
Wt. of Dry Soil + Can, grams	315.30
Wt. of Can, grams No. 804	9.00
Wt. of Dry Soil, grams	306.30
Wt. of Moisture, grams	78.00
Water Content, w%	25%
Wt. of Dry Soil + Can Before Wash, grams	303.00
Wt. of Can, grams No. 804	9.00
Wt. of Dry Soil Before Wash, grams	294.00
Time in / Out of Oven :	11/08/14 11:00 AM TO 11/09/14 11:00 AM
Wt. of Dry Soil + Can After Wash, grams	292.10
Wt. of Dry Soil After Wash, grams	283.10
Total Loss, grams	10.90
Percent Finer Than No. 200 Sieve	4%

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

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HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
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REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC Phase 3A-1 **Project No.:** HR12-891R

Boring No.: WB-2076L **Sample No.:** 3 **Depth:** 4.0'-6.0'

Date: 11/21/14

Technician:	H.C.					
Date Sample Placed in Oven:	11/21/2014					
Time in / Out of Oven :	11/21/14	6:00 PM	TO	11/22/14	6:00 PM	
Wt. of Wet Soil + Can, grams	673.10					
Wt. of Dry Soil + Can, grams	641.60					
Wt. of Can, grams No. 759	9.10					
Wt. of Dry Soil, grams	632.50					
Wt. of Moisture, grams	31.50					
Water Content, w%	5%					
Wt. of Dry Soil + Can Before Wash, grams	641.60					
Wt. of Can, grams No. 759	9.10					
Wt. of Dry Soil Before Wash, grams	632.50					
Time in / Out of Oven :	11/25/14	6:00 AM	TO	11/26/14	6:00 AM	
Wt. of Dry Soil + Can After Wash, grams	610.40					
Wt. of Dry Soil After Wash, grams	601.30					
Total Loss, grams	31.20					
Percent Finer Than No. 200 Sieve	5%					

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

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HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

GRAIN SIZE DATA SHEET

Project Name: I-95 CDC Phase 3A-1 Project No.: HR12-891R

Boring No.: WB-2076L Sample No.: 3 Depth: 4.0'-6.0'

Date: 11/26/2014 Tested By: H.C.

Sieve Size	Particle Size, mm.	Weight on Sieve, gr.	Accumulated Weight, gr.	Percent Retained	Percent Passing	REMARKS
1	25.70	0.00	0.00	0	100	
3/4"	19.00	126.20	126.20	19	81	
3/8"	9.51	62.50	188.70	29	71	
4	4.76	37.40	226.10	35	65	USCS Classification:
10	2.00	27.50	253.60	40	60	
40	0.420	59.50	313.10	49	51	SP-SM
60	0.250	95.10	408.20	64	36	
100	0.149	124.50	532.70	84	16	
200	0.074	68.50	601.20	95	5	
PAN						

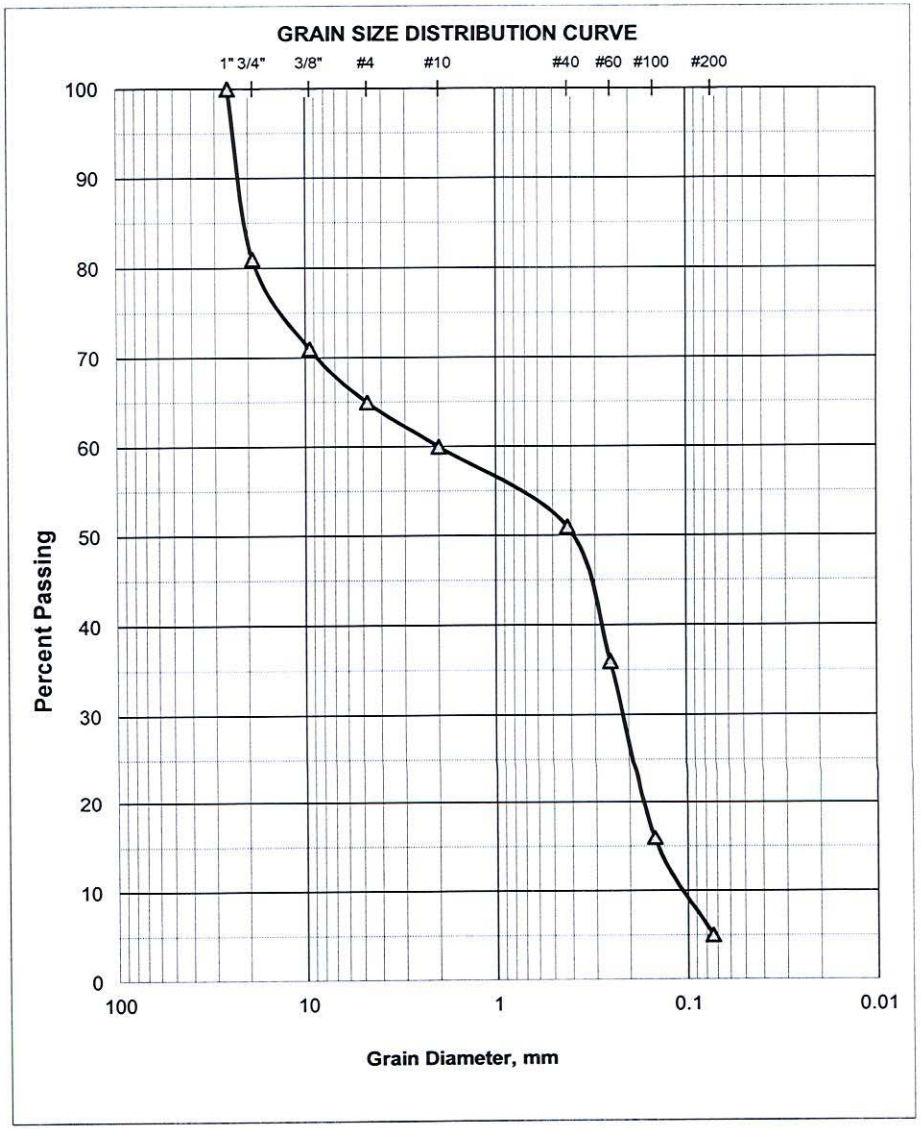
Total Dry Weight Before Wash, (gr) =	632.50
Percent Finer than No. 200 Sieve by Wash Method=	5%

Sieve Analysis Test performed in general accordance with ASTM C 136 (AASHTO T 27 or T 311)
Moisture Content Test performed in general accordance with ASTM D 2216 (ASSHTO T 265)

Material in Sample (%)		
Gravel	≤ No. 4	35
Coarse Sand	>No. 4-≤ No. 40	14
Fine Sand	>No. 40-≤ No. 200	46
Silt and Clays	>No. 200	5
Water Content		5%

Respectfully Submitted,
HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045



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HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: WB-2076L **Sample No.:** 8 **Depth:** 23.0'-25.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 5:00 AM TO 11/08/14 5:00 AM
Wt. of Wet Soil + Can, grams	326.40
Wt. of Dry Soil + Can, grams	255.90
Wt. of Can, grams No. 805	8.30
Wt. of Dry Soil, grams	247.60
Wt. of Moisture, grams	70.50
Water Content, w%	28%
Date Sample Placed in Furnace:	11/08/14
Time in / out of furnace (minimum 6 hrs):	11/08/14 5:00 AM TO 11/08/14 11:00 AM
Weight of Crucible & Oven-Dried Sample:	30.20
Weight of Crucible and Sample After Ignition:	29.60
Weight of Crucible: No. 25	18.00
Weight of Oven-Dried Soil:	12.20
Weight Loss due to Ignition:	0.60
Percent Organics:	5%

Moisture Content Test performed in general accordance with ASTM D 2216
Organic Content Test performed in general accordance with ASTM D 2974

Respectfully Submitted,

HR Engineering Services, Inc.

USCS Classification:

SM-OL

Hernando R. Ramos, P.E.
Florida Registration No. 42045

HR ENGINEERING SERVICES, INC.
7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: WB-2076L **Sample No.:** 8 **Depth:** 23.0'-25.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 5:00 AM TO 11/08/14 5:00 AM
Wt. of Wet Soil + Can, grams	326.40
Wt. of Dry Soil + Can, grams	255.90
Wt. of Can, grams No. 805	8.30
Wt. of Dry Soil, grams	247.60
Wt. of Moisture, grams	70.50
Water Content, w%	28%
Wt. of Dry Soil + Can Before Wash, grams	244.20
Wt. of Can, grams No. 805	8.30
Wt. of Dry Soil Before Wash, grams	235.90
Time in / Out of Oven :	11/08/14 12:00 PM TO 11/09/14 12:00 PM
Wt. of Dry Soil + Can After Wash, grams	223.30
Wt. of Dry Soil After Wash, grams	215.00
Total Loss, grams	20.90
Percent Finer Than No. 200 Sieve	9%

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

SM-OL

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: WB-2076L **Sample No.:** 9 **Depth:** 28.0'-30.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 5:00 AM TO 11/08/14 5:00 AM
Wt. of Wet Soil + Can, grams	574.80
Wt. of Dry Soil + Can, grams	471.10
Wt. of Can, grams No. 806	9.00
Wt. of Dry Soil, grams	462.10
Wt. of Moisture, grams	103.70
Water Content, w%	22%
Date Sample Placed in Furnace:	11/08/14
Time in / out of furnace (minimum 6 hrs):	11/08/14 5:00 AM TO 11/08/14 11:00 AM
Weight of Crucible & Oven-Dried Sample:	28.80
Weight of Crucible and Sample After Ignition:	28.60
Weight of Crucible: No. 234	17.50
Weight of Oven-Dried Soil:	11.30
Weight Loss due to Ignition:	0.20
Percent Organics:	2%

Moisture Content Test performed in general accordance with ASTM D 2216
Organic Content Test performed in general accordance with ASTM D 2974

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

SP-SM

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: WB-2076L **Sample No.:** 9 **Depth:** 28.0'-30.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 5:00 AM TO 11/08/14 5:00 AM
Wt. of Wet Soil + Can, grams	574.80
Wt. of Dry Soil + Can, grams	471.10
Wt. of Can, grams No. 806	9.00
Wt. of Dry Soil, grams	462.10
Wt. of Moisture, grams	103.70
Water Content, w%	22%
Wt. of Dry Soil + Can Before Wash, grams	450.80
Wt. of Can, grams No. 806	9.00
Wt. of Dry Soil Before Wash, grams	441.80
Time in / Out of Oven :	11/08/14 12:00 PM TO 11/09/14 12:00 PM
Wt. of Dry Soil + Can After Wash, grams	430.50
Wt. of Dry Soil After Wash, grams	421.50
Total Loss, grams	20.30
Percent Finer Than No. 200 Sieve	5%

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

SP-SM

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND ORGANIC CONTENT BY LOSS ON IGNITION

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: WB-2080L **Sample No.:** 10 **Depth:** 33.0'-35.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 5:00 AM TO 11/08/14 5:00 AM
Wt. of Wet Soil + Can, grams	396.20
Wt. of Dry Soil + Can, grams	326.60
Wt. of Can, grams No. 807	8.90
Wt. of Dry Soil, grams	317.70
Wt. of Moisture, grams	69.60
Water Content, w%	22%
Date Sample Placed in Furnace:	11/08/14
Time in / out of furnace (minimum 6 hrs):	11/08/14 5:00 AM TO 11/08/14 11:00 AM
Weight of Crucible & Oven-Dried Sample:	28.40
Weight of Crucible and Sample After Ignition:	28.10
Weight of Crucible: No. 83	16.30
Weight of Oven-Dried Soil:	12.10
Weight Loss due to Ignition:	0.30
Percent Organics:	2%

Moisture Content Test performed in general accordance with ASTM D 2216
Organic Content Test performed in general accordance with ASTM D 2974

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

SP

HR ENGINEERING SERVICES, INC.

7815 N.W. 72nd Avenue - Medley, Florida 33166
Phone (305) 888-8880, Fax (305) 888-8770

REPORT OF MOISTURE AND PERCENT PASSING THE No. 200 SIEVE

Project Name: I-95 CDC **Project No.:** HR12-891R

Boring No.: WB-2080L **Sample No.:** 10 **Depth:** 33.0'-35.0'

Date: 11/07/14

Technician:	H.C.
Date Sample Placed in Oven:	11/07/2014
Time in / Out of Oven :	11/07/14 5:00 AM TO 11/08/14 5:00 AM
Wt. of Wet Soil + Can, grams	396.20
Wt. of Dry Soil + Can, grams	326.60
Wt. of Can, grams No. 807	8.90
Wt. of Dry Soil, grams	317.70
Wt. of Moisture, grams	69.60
Water Content, w%	22%
Wt. of Dry Soil + Can Before Wash, grams	314.70
Wt. of Can, grams No. 807	8.90
Wt. of Dry Soil Before Wash, grams	305.80
Time in / Out of Oven :	11/08/14 12:00 PM TO 11/09/14 12:00 PM
Wt. of Dry Soil + Can After Wash, grams	301.60
Wt. of Dry Soil After Wash, grams	292.70
Total Loss, grams	13.10
Percent Finer Than No. 200 Sieve	4%

Moisture Content Test performed in general accordance with ASTM D 2216
Fines Content Test performed in general accordance with ASTM C 136

Respectfully Submitted,

HR Engineering Services, Inc.

Hernando R. Ramos, P.E.
Florida Registration No. 42045

USCS Classification:

SP

HR ENGINEERING SERVICES, INC.

Corrosion Series

Project Name: I-95 CDC PHASE 3A-1

Project Number: HR12-891R **Date:** 11/11/14 **Tested by:** H.C.

Sample No.	Sampling Date	Resistivity, ohm-cm.	Chlorides, ppm	Sulfates, ppm	pH	Testing Date	Sub-Structure Environmental Classification	
							Steel	Concrete
B-2	09/02/14	1856	58	30	7.4	09/05/14	MA	MA
B-3	09/18/14	2220	35	26	7.6	09/19/14	MA	MA
B-5	09/03/14	3133	25	77	7.5	11/04/14	MA	SA
B-7	09/17/14	2417	23	38	7.3	10/13/14	MA	MA
B-8	09/24/14	1927	33	33	7.6	10/13/14	MA	MA
B-11	09/11/14	985	180	40	7.2	09/19/14	EA	MA
B-12	09/02/14	970	191	34	7.3	09/19/14	EA	MA
B-2100 (NE Sunrise Blvd. Pond)	10/10/14	1952	55	30	7.5	10/13/14	MA	MA
CB-4 (C-13 Canal)	10/10/14	2427	15	77	7.3	10/13/14	MA	MA

SA: Slightly Aggressive

MA: Moderately Aggressive

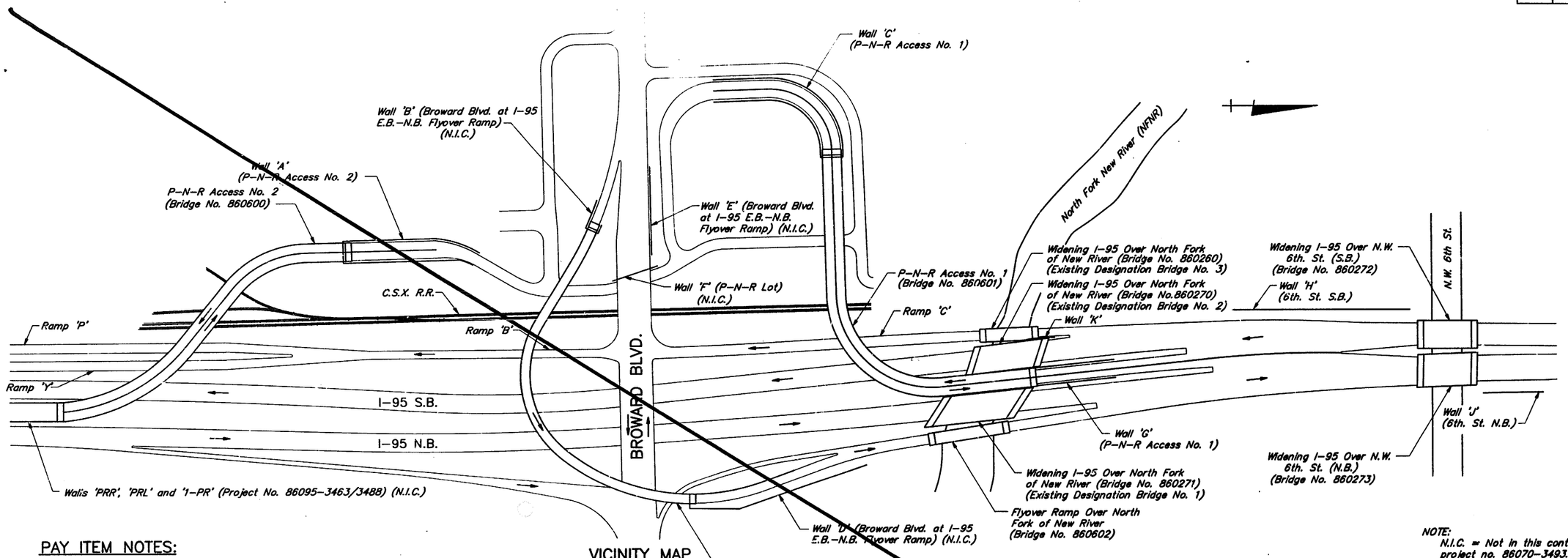
EA: Extremely Aggressive

Tests performed by HRES in accordance with Florida Method of Test Corrosion Series in Soil and Water, Designation FM 5-550 through FM 5-553

APPENDIX – B2

Existing Soil Boring Information from Previous Projects along the Project Corridor

FED. ROAD Div. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-IR-95-1(398)27		A-1



VICINITY MAP

NOTE:
N.I.C. = Not in this contract, See state project no. 86070-3493. (Broward Blvd. at I-95 E.B.-N.B. Flyover Ramp), state project no. 86070-3496 (P-N-R Lot) and state project no. 86095-3463/3488 (I-595 / I-95 / Davie Blvd.)

NOTE:
PAYMENT FOR DOOR ASSEMBLY ENCLOSURES AT THE ACCESS OPENING IN THE GIRDERS SHALL BE PAID FOR UNDER BID ITEM NO. 2-460108-B, LUMP SUM BASIS. SEE SHEET A-12 FOR QUANTITY.

PAY ITEM NOTES:

1. Payment for Incidental Items Not Specifically Covered in the Individual Bid Items Shall Be Included In the Contract Prices for the Bid Items.
2. For Summary of Bridge Pay Items, see Print of Computer (CES) Output.
3. For Maintenance of Traffic Notes, see Roadway Plans.
4. The Following Numbers of Standard Composite Neoprene Bearing Pads Are Required:
   Bridge No. 1 : (32) Type II Composite Pads
   32 — 40 — 8 Type III Composite Pads
   Bridge No. 2 : 20 Type III Composite Pads
   Bridge No. 3 : 8 Type II Composite Pads
   4 Type III Composite Pads
   Bridges over
   N.W. 6th Street : 24 Type II Composite Pads
   38 Type IV Composite Pads
   Flyover Ramp : 18 Type III Composite Pads
   Item No. 400-147 includes quantities for all pads.
5. Bid Item No. 400-7 includes the following areas for Approach Slab Grooving:
   P.N.R. No. 1 : 231 S.Y.
   P.N.R. No. 2 : 231 S.Y.
   Flyover Ramp : 116 S.Y.
6. The Total Plan Area of Entirely New Approach Slabs Required is as Follows:
   P.N.R. No. 1 : 279 S.Y.
   P.N.R. No. 2 : 279 S.Y.
   Flyover Ramp : 138 S.Y.
   Details of approach slabs and payment are included in the Roadway Plans.
7. Item Number 110-3 Includes Removal of Appoximately the Following (Plan Area) of Existing Structure :
   Bridge No. 1 : (5,636 S.F.) — 6,830 S.F. (32)
   Bridge No. 2 : 1,087 S.F.
   Bridge No. 3 : 814 S.F.
   Bridges over N.W. 6th Street : 833 S.F.(NB)
   833 S.F.(SB)
8. The Number "9" that precedes Item Number Indicates Epoxy Coated Reinforcing is used in the Item.
9. The Cost of Cleaning and Sealing All Concrete Surfaces to be Sealed Shall be Paid for Under Item No. 400-154, Cleaning and Sealing Concrete Surfaces.
10. The Cost of Furnishing Penetrant sealer to All Concrete Surfaces to be Sealed at an Estimated Application Rate of 200 Sq. Ft. Per Gallon Shall be Paid For Under Item No. 400-149, Penetrant Sealer.
11. Payment for "Class 5 Applied Finish Coating" on the Existing Substructure shall be Under Bid Item No. 400-143, Cleaning and Coating Concrete Surfaces.

△2 △1 12. Estimated structural steel quantities:

A. Bid item no. 460-2-1, Structural Steel (Carbon)-

	P-N-R NO. 1			P-N-R NO. 2		
1) Grade 36 material	859,692	(846,641)	lbs.	729,639 (726,305)	(721,414)	lbs
2) Anchor bolts		3,368			4,443	
3) High strength bolts	67,916	(68,074)		△8	(70,910)	71,180
4) Shear connectors	31,041	(30,132)		833,577	(31,315)	lbs
	Total 962,017	(948,215)	lbs.		(829,973) (825,082)	

B. Bid item no. 460-2-2, Structural Steel (Low Alloy)-

1) Grade 50 material	(3,682,850) 3,698,942	lbs.	5,276,413 lbs

△1 13. It should be noted that quantities for some of the bridges are divided among two different project numbers on the Summary of Bridge Pay Items.

GENERAL INDEX OF SHEETS

Timothy J. Fussell
January 30, 1995

860600
Page No. 2

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W.P.I. NO. 4140930
VICINITY MAP, GENERAL INDEX OF SHEETS AND PAY ITEM NOTES

OSR CONSULTANT NO. — ENGINEERS • SURVEYORS • PLANNERS — TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

I-95 H.O.V.

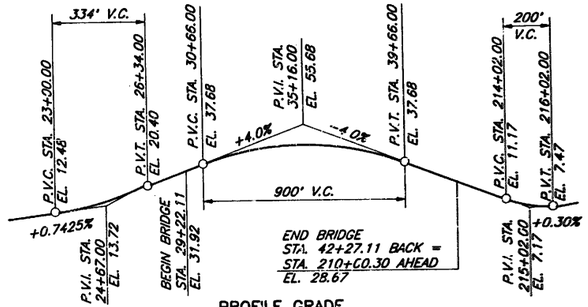
ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464/3465

	Names	Dates
Designed by	PAH	1-91
Checked by	JER	1-91
Quantities by	——	——
Checked by	——	——
Supervised by	JER	

Drawing No. | Index No.

REVISIONS			REVISIONS		
Date	By	Descriptions	Date	By	Descriptions
1-30-95	TJF	△2 PNR NO. 2 STRUCTURAL STEEL QUANTITY	7/12/95	WF	△1 Added notes 12 & 13. Removed Index 700.
			9-25-95	TJL	△2 Note 12
			2-22-93	AGM	15 ADDED NOTE
			9-14-93	SCR	32 REVISED BRIDGE NO. 1 TYPE II COMP PAD QUANTITY AND BRIDGE NO. 1 PAY ITEM 110-3 QUANTITY

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-IR-95-1(398)27		B-1

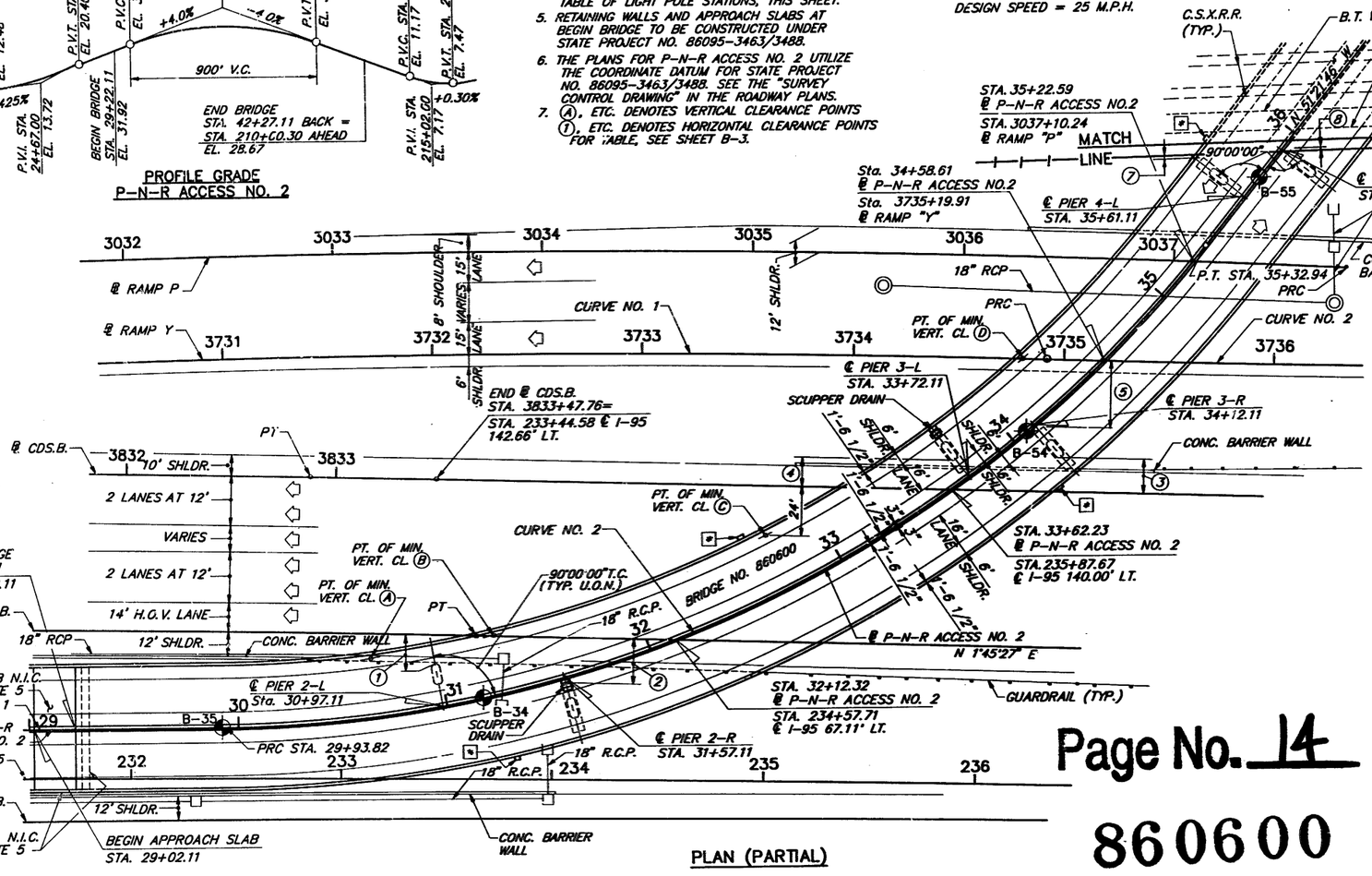


PROFILE GRADE
P-N-R ACCESS NO. 2

NOTES:

1. ⊕ DENOTES BORING LOCATION.
2. FOR HORIZONTAL CURVE DATA AND PROFILE GRADES NOT SHOWN, SEE SHEET B-2.
3. FOR BRIDGE PAY ITEM NOTES, SEE SHEET A-1.
4. [*] DENOTES LIGHT POLE LOCATIONS, SEE TABLE OF LIGHT POLE STATIONS, THIS SHEET.
5. RETAINING WALLS AND APPROACH SLABS AT BEGIN BRIDGE TO BE CONSTRUCTED UNDER STATE PROJECT NO. 86095-3463/3488.
6. THE PLANS FOR P-N-R ACCESS NO. 2 UTILIZE THE COORDINATE DATUM FOR STATE PROJECT NO. 86095-3463/3488. SEE THE "SURVEY CONTROL DRAWING" IN THE ROADWAY PLANS.
7. (A), ETC. DENOTES VERTICAL CLEARANCE POINTS
   (1), ETC. DENOTES HORIZONTAL CLEARANCE POINTS FOR TABLE, SEE SHEET B-3.

TRAFFIC DATA
1992 ADT = 1,646
2012 ADT = 1,646
K = 50%
T = 2%
D = 80%
DESIGN SPEED = 25 M.P.H.



PLAN (PARTIAL)

Page No. 14

860600

INDEX OF SHEETS

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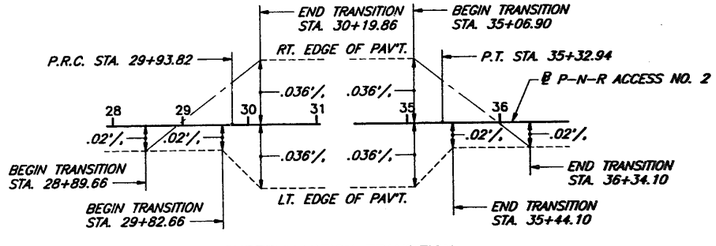
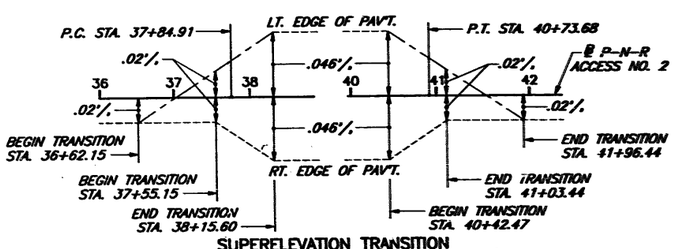
MORRISON KNUDSEN C-8044



SUPERELEVATION TRANSITION
P-N-R ACCESS NO. 2 (CURVE NO. 2)

TABLE OF LIGHT POLE STATIONS
31+27
32+64
34+02
35+71
37+07
39+29
40+73
42+17



SUPERELEVATION TRANSITION
P-N-R ACCESS NO. 2 (CURVE NO. 3)

REVISIONS		
Date	By	Description
7-12-91	WF	(1) ADDED "(TO REMAIN)"

W.P.I. NO. 4140930
GENERAL PLAN (SHEET 1 OF 2)

DSA GROUP INC. — ENGINEERS • SURVEYORS • PLANNERS — TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

P-N-R ACCESS NO. 2
BRIDGE NO. 860600

ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464/3465

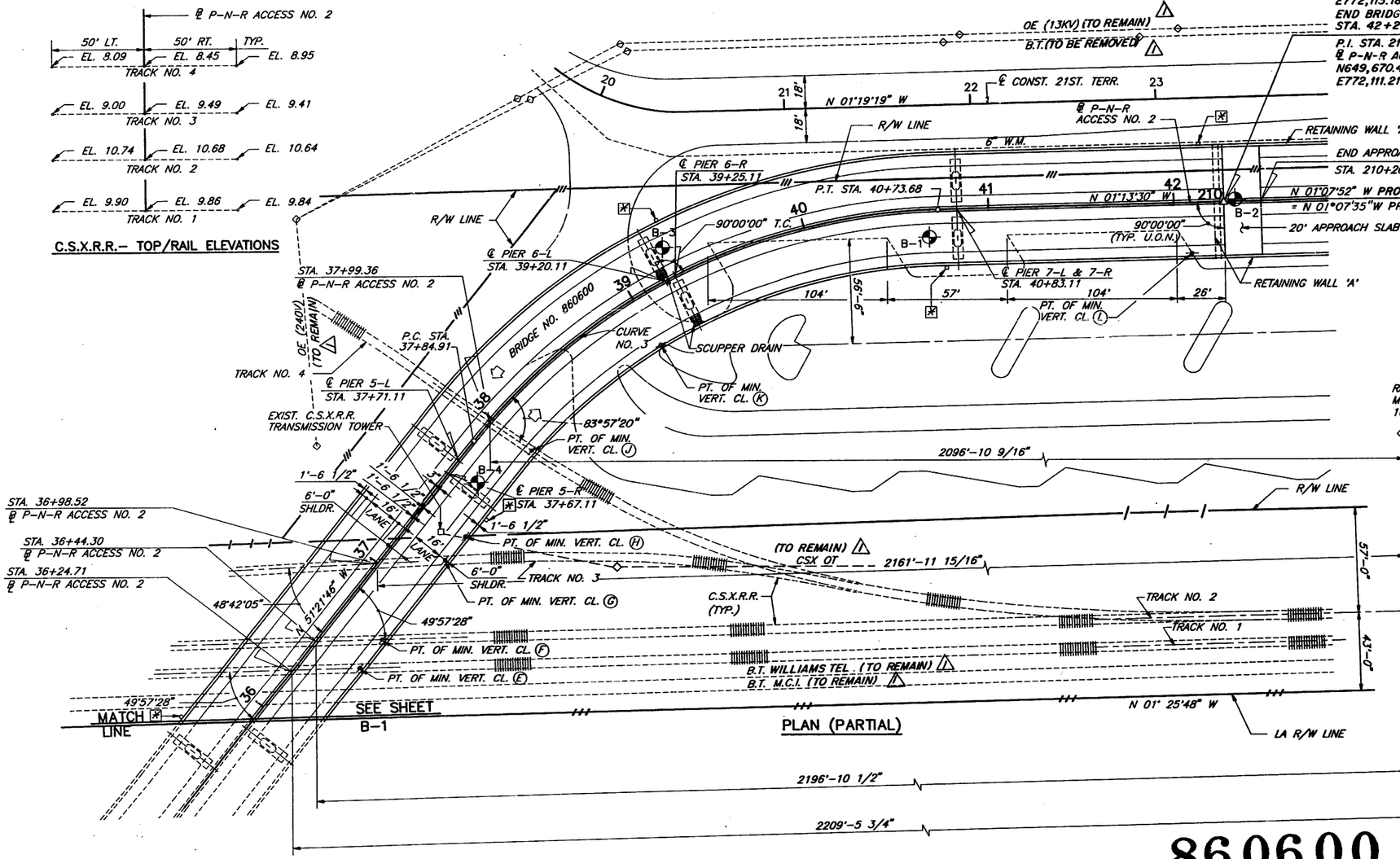
	Names	Dates
Designed by	RAH	4-91
Checked by	JSR	5-91
Quantities by		
Checked by		
Supervised by	JSR	

Jose G. Rodriguez

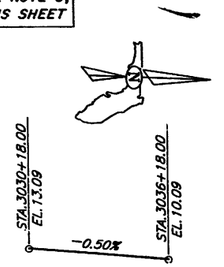
Drawing No. | Index No.

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			B-2

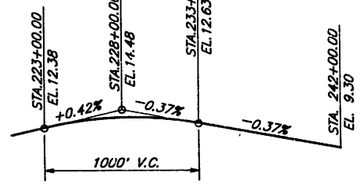
C.S.X.R.R.– TOP/RAIL ELEVATIONS



PLAN (PARTIAL)



PROFILE GRADE
RAMP P



PROFILE GRADE
I-95

NOTES:

1. ⊕ DENOTES BORING LOCATION.
2. FOR SUPERELEVATION TRANSITION AND PROFILE GRADES NOT SHOWN, SEE SHEET B-1.
3. FOR BRIDGE PAY ITEM NOTES, SEE SHEET A-1.
4. ⊠ DENOTES LIGHT POLE LOCATIONS. SEE TABLE OF LIGHT POLE STATIONS, SHEET B-1.
5. THE PLANS FOR P-N-R ACCESS NO.2 UTILIZE THE COORDINATE DATUM FOR STATE PROJECT NO. 86095-3463/3488. SEE THE "EQUATION SHEET" IN THE ROADWAY PLANS. ITEMS MARKED WITH ⊛ REFER TO THE COORDINATE DATUM FOR STATE PROJECT NO. 86070-3464/3465.
6. Ⓐ, ETC. DENOTES VERTICAL CLEARANCE POINTS Ⓘ, ETC. DENOTES HORIZONTAL CLEARANCE POINTS FOR TABLE, SEE SHEET B-3.

HORIZONTAL CURVE DATA

	℄ P-N-R ACCESS NO. 2			℄ CONST I-95	℄ RAMP P	℄ I-95 S.B.	℄ I-95 N.B.	℄ CDS.B.	℄ RAMP Y	℄ RAMP Y
	CURVE NO.1	CURVE NO.2	CURVE NO.3						CURVE NO. 1	CURVE NO. 2
△	01°51'54"RT.	51°28'55"LT.	50°08'16"RT.	04°48'59"RT.	04°30'54"RT.	07°27'33"RT.	02°59'20"RT.	2°07'13" RT.	3°25'58" RT.	3°25'58" RT.
D	00°14'58"	9°32'57"	17°21'44"	00°15'00"	00°45'00"	00°30'00"	00°15'00"	0°15'00"	0°45'00"	0°30'00"
R	22,963.31'	600.00'	330.00'	22,918.31'	7,639.44'	11,459.16'	22,918.31'	22,918.31'	7,639.44'	11 459.15'
T	373.76'	289.29'	154.36'	963.85'	301.16'	746.97'	597.91'	424.12'	228.92'	343.38'
L	747.45'	539.12'	288.77'	1,926.56'	602.00'	1,491.83'	1,195.56'	848.15'	457.70'	686.55'
P.C.STA.	22+46.37	29+93.82	37+84.91	217+19.41	3031+79.66	———	———	3824+39.54	3730+33.92	3734+91.62
P.T.STA.	29+93.82	35+32.94	40+73.68	236+45.97	3037+81.66	———	———	3832+87.69	3734+91.62	3741+78.17
P.I.STA.	26+20.13	32+83.11	39+39.27	226+83.26	3034+80.82	———	———	3828+63.66	3732+62.84	3738+35.00
e	0.02'/,	0.036'/,	0.046'/,	0.02'/,	N.C.	0.03'/,	N.C.			

860600

Page No. 15

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JAN 0 2 1992
FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT FOUR
PLANNING & ENVIRONMENTAL MANAGEMENT

GENERAL PLAN (SHEET 2 OF 2)

REVISIONS		
Date	By	Descriptions
7-12-91	WF	△ DENOTED DISPOSITION OF UTILITIES.

DSA GROUP INC. ENGINEERS • SURVEYORS • PLANNERS TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

P-N-R ACCESS NO. 2
BRIDGE NO. 860600

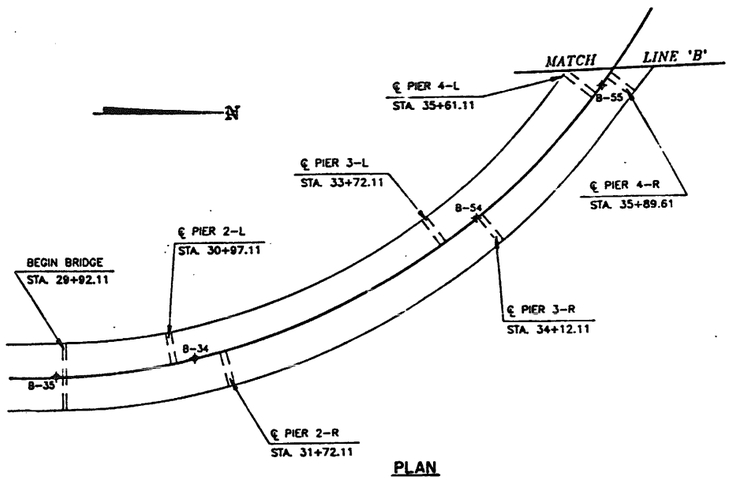
ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464/3465

	Names	Dates
Designed by	Edit	4-91
Checked by	JSR	5-91
Quantities by		
Checked by		
Supervised by	JSR	

Jose S. Rodriguez

Drawing No.	Index No.

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
9	FLA.			B-4



PLAN

SCALE: (HORIZONTAL)
60 0 30 60 120 FT.

LEGEND:

- SPT BORING
- *N* STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT
- GROUNDWATER LEVEL
- SAND
- SAND AND SILT
- SANDSTONE

NOTES:

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE SPECIFIED.

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS REPRESENT THE CONDITIONS ENCOUNTERED AT THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND LIMITED LABORATORY TESTING.

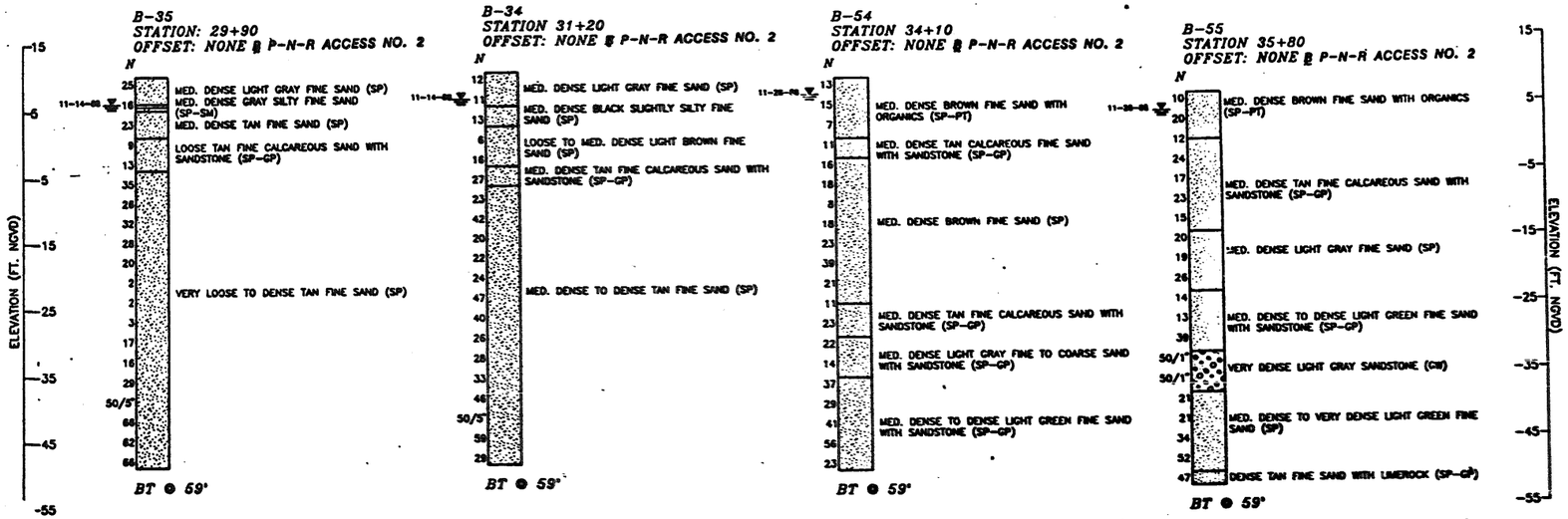
PLAN AS SHOWN IS PRELIMINARY FOR REPRESENTATION OF BORING LOCATIONS ONLY AND MAY NOT INDICATIVE OF FINAL CONTRACT PLANS.

SPLIT SPOON SAMPLER:
INSIDE DIAMETER: 1.375 IN.
OUTSIDE DIAMETER: 2.0 IN.
AVG. HAMMER DROP: 30.0 IN.
HAMMER WEIGHT: 140 LBS.

SCALE: 1"= 60' HORIZONTAL (FOR PLAN VIEW)
1"= 10' VERTICAL (FOR PROFILE OF BORINGS)

ENVIRONMENT
SUBSTRUCTURE: ***NON-CORROSIVE (SLIGHTLY AGGRESSIVE)***
SUPERSTRUCTURE: ***NON-CORROSIVE (SLIGHTLY AGGRESSIVE)***

PROFILE OF BORINGS:



860600
Page No. 17

APPROVED: Timothy S. Carter, P.E.
DATE: 3/29/91 P.E. NO.: 39420

WESTINGHOUSE ENVIRONMENTAL AND GEOTECHNICAL SERVICES, INC.

BORING DATA (SHEET 1 OF 2)

REVISIONS		
Date	By	Description

DSA ENGINEERS • SURVEYORS • PLANNERS
TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

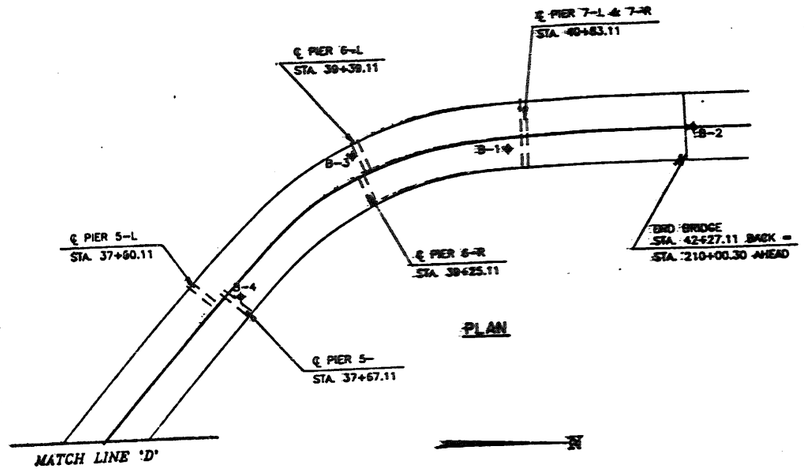
P-N-R ACCESS NO. 2
BRIDGE NO. 860600

ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464 / 3465

	Name	Date
Designed by		
Checked by		
Quantities by	J.W.	4-6-90
Checked by	TC	3-29-91
Approved by		

APPROVED BY
Drawing No.
Index No.

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			8-15



SCALE: (HORIZONTAL)

60 0 30 60 120 FT.

LEGEND:

- SPT BORING
- *N* STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT
- GROUNDWATER LEVEL
- W/H WEIGHT OF HAMMER
- SAND
- SANDSTONE
- FILL

NOTES:

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE SPECIFIED.

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS REPRESENT THE CONDITIONS ENCOUNTERED AT THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND LIMITED LABORATORY TESTING.

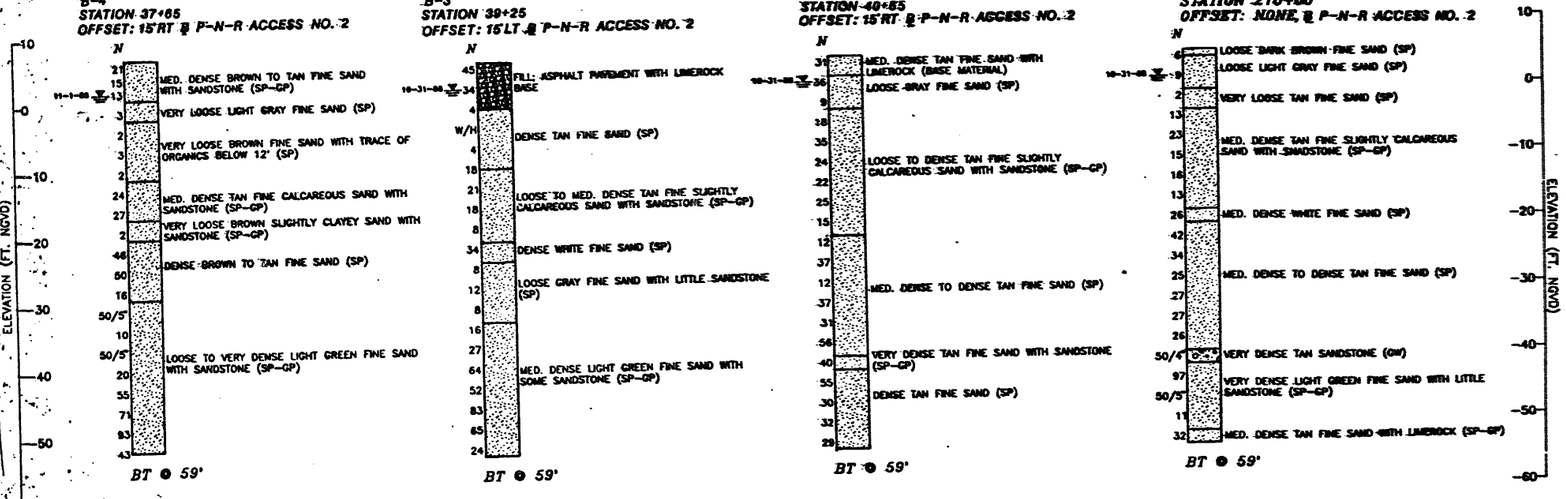
PLAN AS SHOWN IS PRELIMINARY FOR REPRESENTATION OF BORING LOCATIONS ONLY AND MAY NOT INDICATIVE OF FINAL CONTRACT PLANS.

SPLIT SPOON SAMPLER:
INSIDE DIAMETER: 1.375 IN.
OUTSIDE DIAMETER: 2.0 IN.
AVG. HAMMER DROP: 30.0 IN.
HAMMER WEIGHT: 140 LBS.

SCALE: 1"= 60' HORIZONTAL (FOR PLAN VIEW)
1"= 10' VERTICAL (FOR PROFILE OF BORINGS)

ENVIRONMENT
SUBSTRUCTURE: *NON-CORROSIVE (SLIGHTLY AGGRESSIVE)*
SUPERSTRUCTURE: *NON-CORROSIVE (SLIGHTLY AGGRESSIVE)*

PROFILE OF BORINGS:



860600

Page No. 18

APPROVED: _____ TIMOTHY S. CARTER, P.E.

DATE: 3/29/91 P.E. NO.: 32490

WESTINGHOUSE ENVIRONMENTAL AND GEOTECHNICAL SERVICES, INC.

BORING DATA (SHEET 2 OF 2)

REVISIONS		
Date	By	Description

OSP ENGINEERS • SURVEYORS • PLANNERS
TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

P-N-R ACCESS NO. 2
BRIDGE NO. 868690

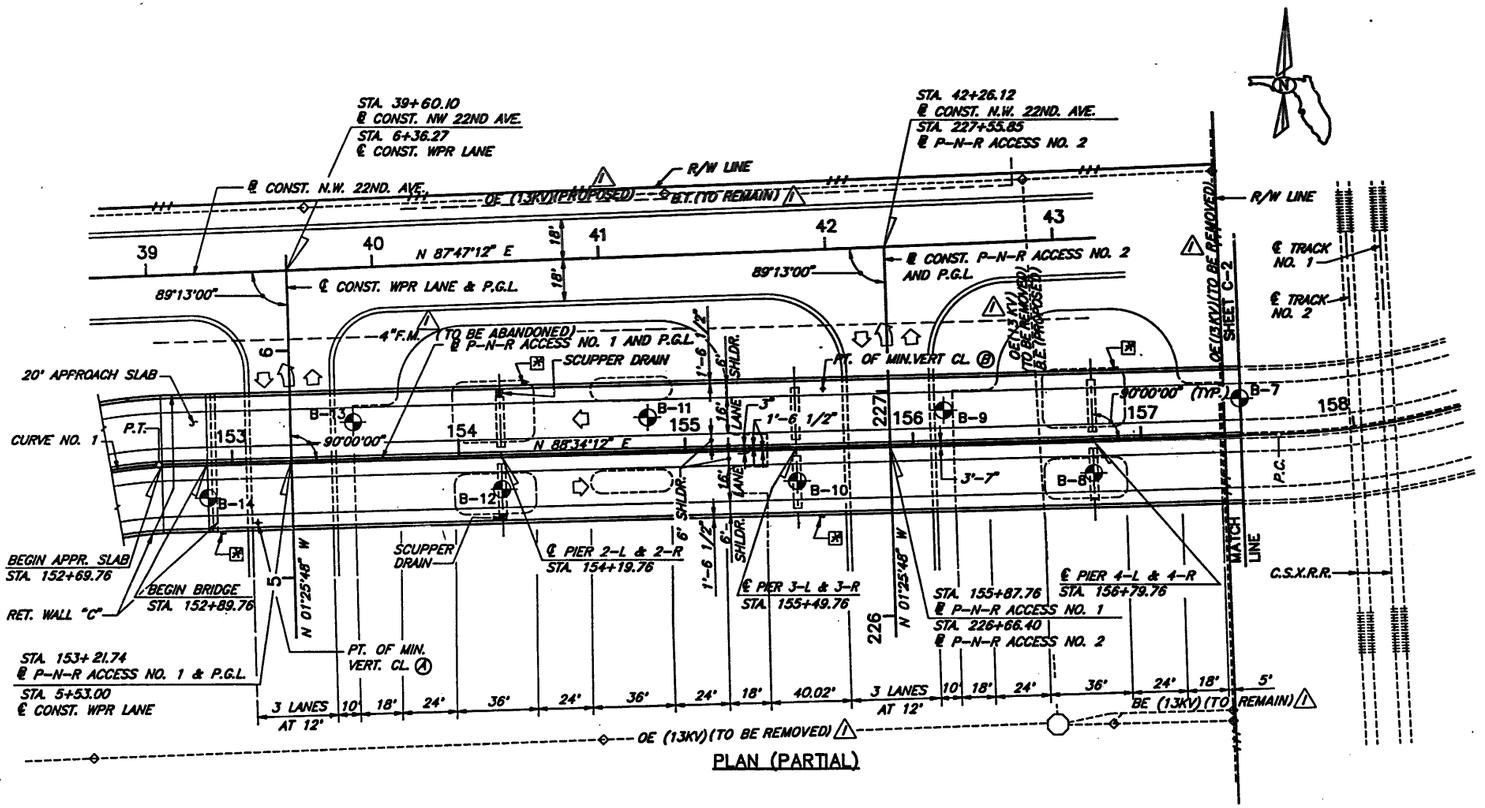
DISTRICT	COUNTY	PROJECT NO.
9	BROWARD	86070-3464 / 3465

	Name	Date
Designed by		
Detailed by		
Quantities by	RW	3-6-91
Checked by	TSC	3-19-91
Supervised by		

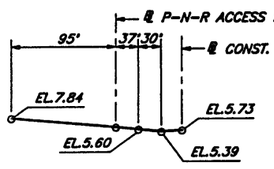
APPROVED BY

Drawing No. | Sheet No.

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-IR-95-1(398)27		C-1

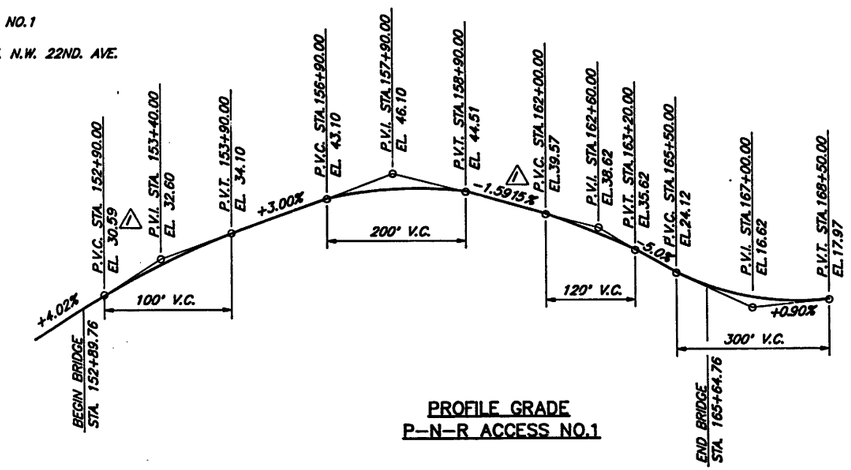


PLAN (PARTIAL)



PROFILE GRADE
℄ CONST. WPR LANE

PROFILE GRADE
P-N-R ACCESS NO. 2



PROFILE GRADE
P-N-R ACCESS NO.1

INDEX OF SHEETS

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860600

NOTES:

1. ⊕ DENOTES BORING LOCATION.
2. FOR HORIZONTAL CURVE DATA, SUPERELEVATION TRANSITION, AND PROFILE GRADES NOT SHOWN, SEE SHEET C-2.
3. FOR BRIDGE PAY ITEM NOTES, SEE SHEET A-1.
4. ⊡ DENOTES LIGHT POLE LOCATIONS. SEE TABLE OF LIGHT POLE STATIONS, SHEET C-3.

TRAFFIC DATA
1992 ADT = 2,359
2012 ADT = 2,359
K = 50.0%
T = 2%
D = 80.0%
DESIGN SPEED = 25 M.P.H.

W.P.I. NO. 4140930
GENERAL PLAN (SHEET 1 OF 2)

REVISIONS		
Date	By	Description
7-12-91	G.D.	⚠ DENOTED DISPOSITION OF UTILITIES, REV. P.G.L.

OSA GROUP INC. — ENGINEERS • SURVEYORS • PLANNERS — TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

P-N-R ACCESS NO. 1
BRIDGE NO. 860601

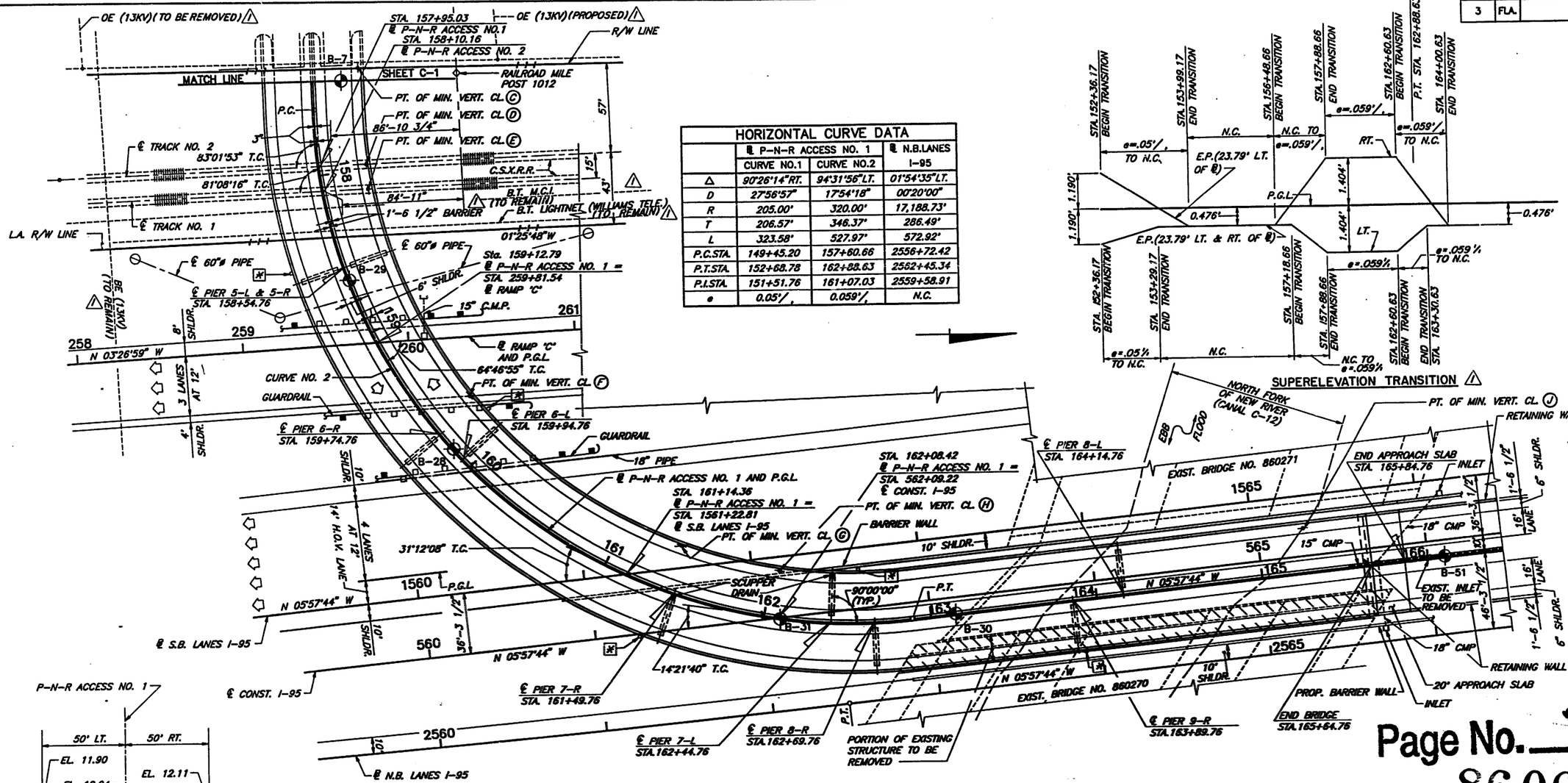
ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464/3465

	Names	Dates
Designed by	RAH	4-91
Checked by	JSF	4-91
Quantities by		
Checked by		
Supervised by	JSF	

Jose E. Rodriguez

Drawing No. | Index No.

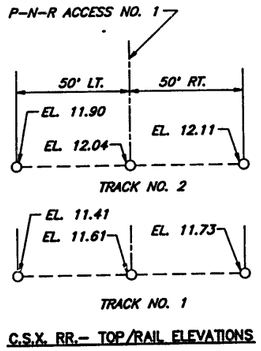
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			C-2



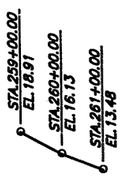
HORIZONTAL CURVE DATA

	℄ P-N-R ACCESS NO. 1		℄ N.B.LANES
	CURVE NO.1	CURVE NO.2	I-95
△	90°26'14"RT.	94°31'56"LT.	01°54'35"LT.
D	27°56'57"	17°54'18"	00°20'00"
R	205.00'	320.00'	17,188.73'
T	206.57'	346.37'	286.49'
L	323.58'	527.97'	572.92'
P.C.STA.	149+45.20	157+60.66	2556+72.42
P.T.STA.	152+68.78	162+88.63	2562+45.34
P.I.STA.	151+51.76	161+07.03	2559+58.91
e	0.05'/'	0.059'/'	N.C.

SUPERELEVATION TRANSITION ⚠



C.S.X. RR.- TOP/RAIL ELEVATIONS



PROFILE GRADE RAMP 'C'

PROFILE GRADE S.B. LANES I-95

PLAN (PARTIAL)

NOTES:
1. ⊕ DENOTES BORING LOCATION.
2. FOR PROFILE GRADES NOT SHOWN, SEE SHEET C-1.
3. ✱ DENOTES LIGHT POLE LOCATIONS.
4. FOR TABLE OF LIGHT POLE STATIONS, SEE SHEET C-3.

REVISIONS		
Date	By	Description
7-12-91	G.D.	⚠ DENOTED DISPOSITION OF UTILITIES, REV. SUPER. TRANS. DIAGRAM

Page No. 83

860600

PRELIMINARY
GENERAL PLAN (SHEET 2 OF 2)

USA GROUP INC. — ENGINEERS • SURVEYORS • PLANNERS — TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

P-N-R ACCESS NO. 1
BRIDGE NO. 860601

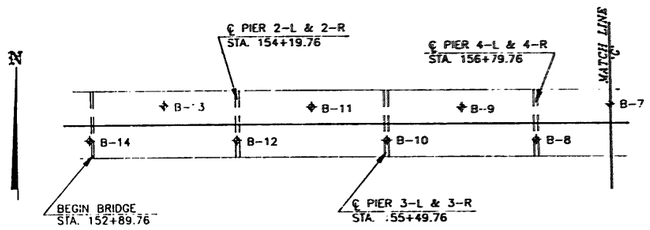
ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464/3465

	Signature	Date
Designed by	RAH	4-91
Checked by	JSR	4-91
Quantities by	—	—
Checked by	—	—
Supervised by	JSR	

Jose S. Rodriguez

Drawing No.	Index No.

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			C-4



PLAN

SCALE: (HORIZONTAL)

60 0 30 60 120 FT.

LEGEND:

- SPT BORING
- *N* STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT
- GROUNDWATER LEVEL
- SAND

NOTES:

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE SPECIFIED.

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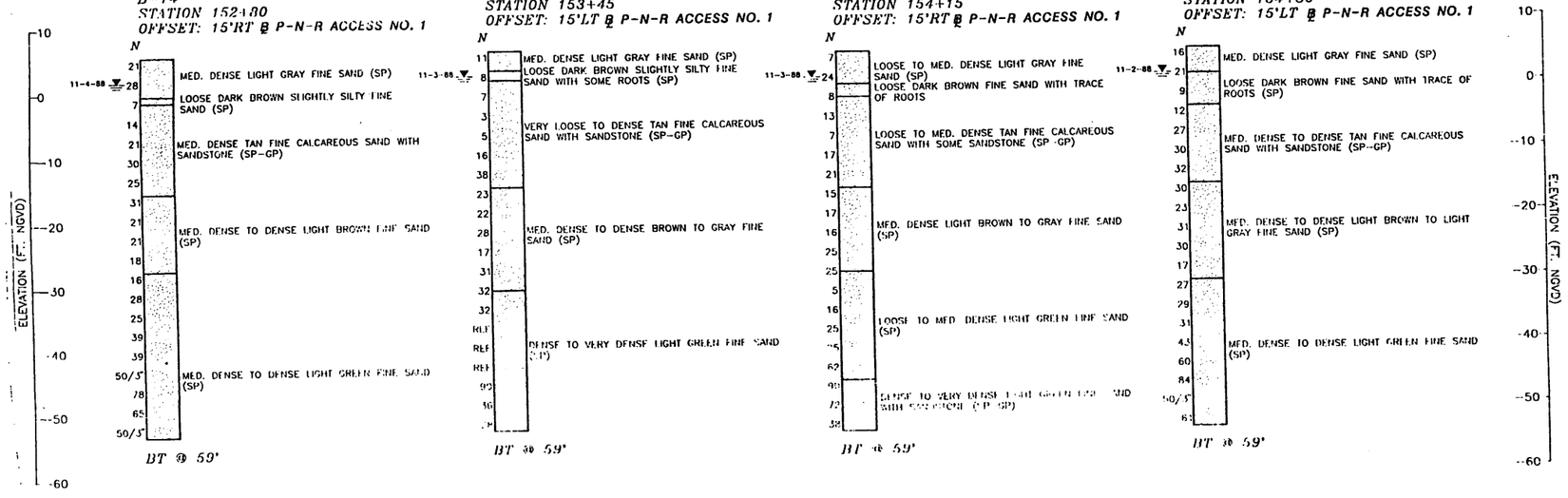
SPLIT SPOON SAMPLER:
INSIDE DIAMETER: 1.375 IN.
OUTSIDE DIAMETER: 2.0 IN.
AVG. HAMMER DROP: 30.0 IN.
HAMMER WEIGHT: 140 LBS.

SCALE: 1"= 60' HORIZONTAL (FOR PLAN VIEW)
1"= 10' VERTICAL (FOR PROFILE OF BORINGS)

ENVIRONMENT
SUBSTRUCTURE: *NON-CORROSIVE (SLIGHTLY AGGRESSIVE) SPANS 1-L THRU 6-L AND 1-R THRU 7-R*
CORROSIVE (EXTREMELY AGGRESSIVE) SPANS 7-L, 8-L, 8-R, AND 9-R

SUPERSTRUCTURE: NON-CORROSIVE (SLIGHTLY AGGRESSIVE) SPANS 1-L THRU 6-L AND 1-R THRU 7-R
CORROSIVE (EXTREMELY AGGRESSIVE) SPANS 7-L, 8-L, 8-R AND 9-R

PROFILE OF BORINGS:



Page No. 85

860600

APPROVED: TIMOTHY S. CARTER, P.E.

DATE: 1/11 P.E. NO.: 39420

WESTINGHOUSE ENVIRONMENTAL AND GEOTECHNICAL SERVICES, INC.

BORING DATA (SHEET 1 OF 4)

OSA GROUP INC. ENGINEERS • SURVEYORS • PLANNERS
TAMPA, FLORIDA

REVISIONS		
Date	By	Description

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

P-N-R ACCESS NO. 1
BRIDGE NO. 860601

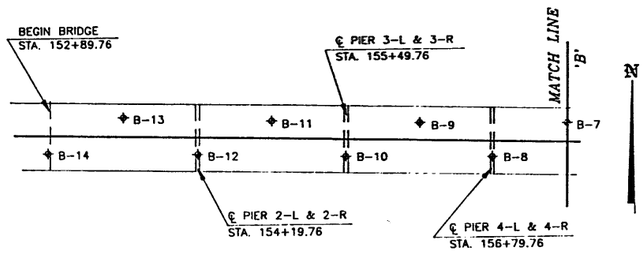
ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070 3464 / 3465

	Names	Dates
Designed by		
Checked by		
Quantities by	RED	1-6-91
Checked by	TSC	2-4-91
Supervised by		

APPROVED BY

Drawing No. | Index No.

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			C-5



PLAN

SCALE: (HORIZONTAL)
60 0 30 60 120 FT.

LEGEND:

- SPT BORING
- *N* STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT
- GROUNDWATER LEVEL
- SAND
- LIMEROCK

NOTES:

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1"= 10' VERTICAL (FOR PROFILE OF BORINGS)

ENVIRONMENT

SUBSTRUCTURE: NON-CORROSIVE (SLIGHTLY AGGRESSIVE) SPANS 1-L THRU 6-L AND 1-R THRU 7-R
CORROSIVE (EXTREMELY AGGRESSIVE) SPANS 7-L, 8-L, 8-R AND 9-R

SUPERSTRUCTURE: NON-CORROSIVE (SLIGHTLY AGGRESSIVE) SPANS 1-L THRU 6-L AND 1-L THRU 7-R
CORROSIVE (EXTREMELY AGGRESSIVE) SPANS 7-L, 8-L, 8-R AND 9-R)

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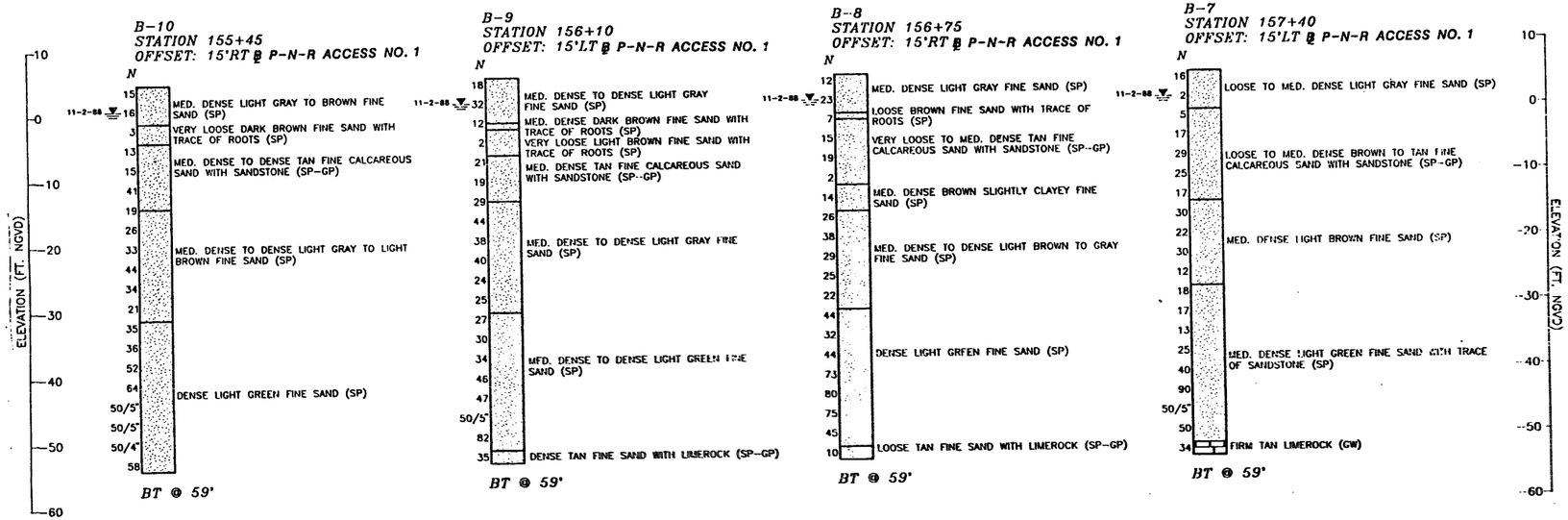
860600

PROFILE OF BORINGS:



APPROVED: TIMOTHY S. CARTER, P.E.

DATE: 5/31/11 P.E. NO. 39420

WESTINGHOUSE ENVIRONMENTAL AND GEOTECHNICAL SERVICES, INC.

BORING DATA SHEET (SHEET 2 OF 4)

OSP GROUP INC. ENGINEERS • SURVEYORS • PLANNERS
TAMPA, FLORIDA

REVISIONS		
Date	By	Description

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

P-N-R ACCESS NO. 1
BRIDGE NO. 860601

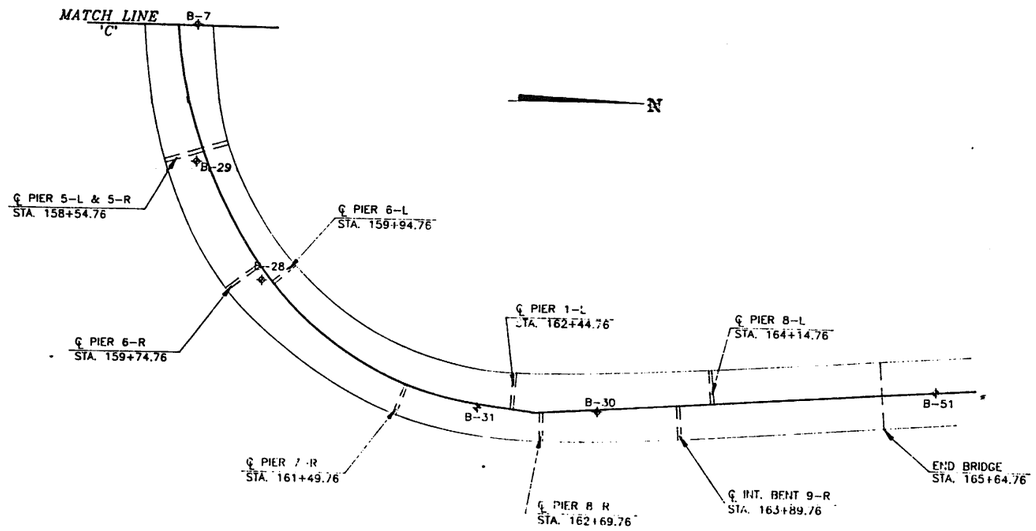
ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464 / 3465

	Names	Dates
Designed by		
Checked by		
Quantities by	KW	5/24/11
Checked by		5/24/11
Supervised by		

APPROVED BY

Drawing No. | Index No.

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			C-6



PLAN

SCALE: (HORIZONTAL)

60 0 30 60 120 FT.

LEGEND:

SPT BORING

N STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT

GROUNDWATER LEVEL

SAND

LIMEROCK

NOTES:

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE SPECIFIED.

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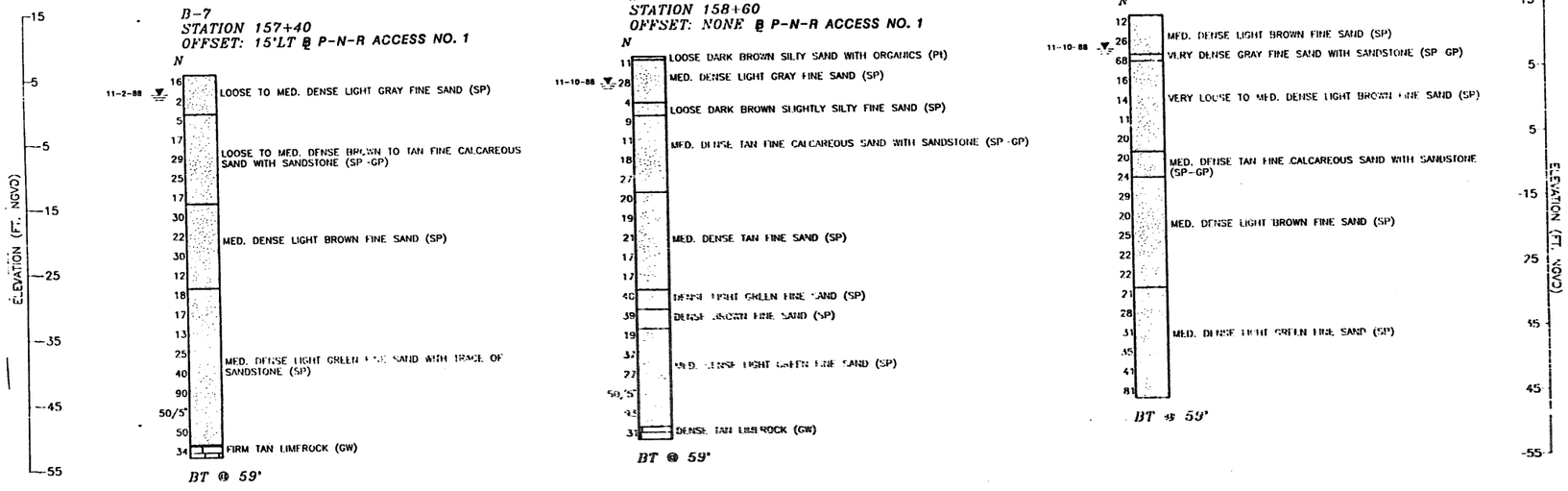
SCALE: 1"= 60' HORIZONTAL (FOR PLAN VIEW)
1"= 10' VERTICAL (FOR PROFILE OF BORINGS)

ENVIRONMENT

SUBSTRUCTURE: NON-CORROSIVE (SLIGHTLY AGGRESSIVE) SPANS 1-L THRU 6-L AND 1-R THRU 7-R
CORROSIVE (EXTREMELY AGGRESSIVE) SPANS 7-L, 8-L, 8-R AND 9-R

SUPERSTRUCTURE: NON-CORROSIVE (SLIGHTLY AGGRESSIVE) SPANS 1-L THRU 6-L AND 1-L THRU 7-R
CORROSIVE (EXTREMELY AGGRESSIVE) SPANS 7-L, 8-L, 8-R AND 9-R)

PROFILE OF BORINGS:



Page No. 87

860600

APPROVED: TIMOTHY S. CARTER, PE

DATE: 3/21/11 P.E. NO.: 39420

WESTINGHOUSE ENVIRONMENTAL AND GEOTECHNICAL SERVICES, INC.

BORING DATA (SHEET 3 OF 4)

REVISIONS		
Date	By	Description

OSP GROUP ENGINEERS • SURVEYORS • PLANNERS
TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

P-N-R ACCESS NO. 1
BRIDGE NO. 860601

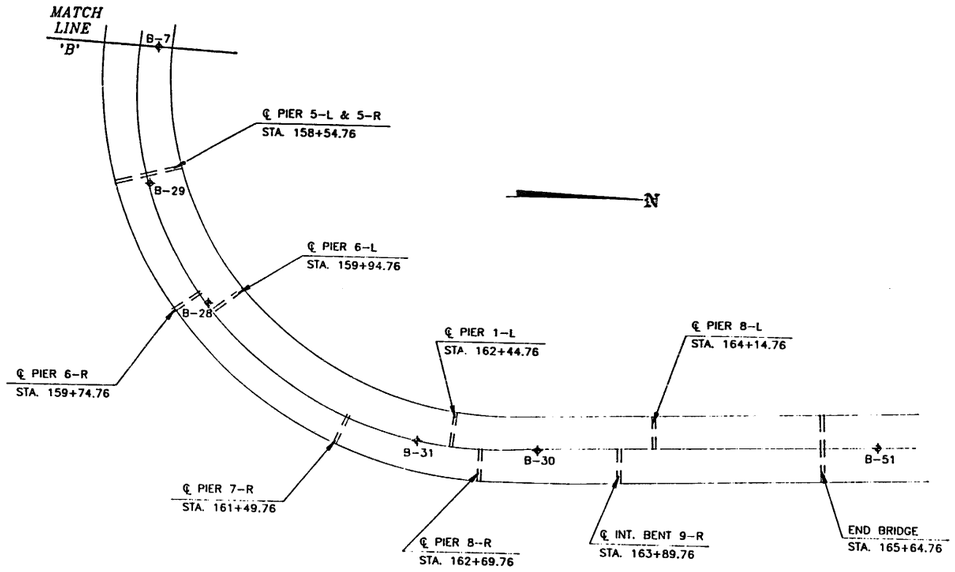
ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464/3465

	Names	Dates
Designed by		
Checked by		
Quantities by	KC	1-6-10
Checked by	TC	1-21-11
Supervised by		

APPROVED BY

Drawing No. | Index No.

FED. ROAD SYS. NO.	STATE	PROJECT NO	FISCAL YEAR	SHEET NO.
3	FLA.			C-7



PLAN

SCALE: (HORIZONTAL)
60 0 30 60 120 FT.

LEGEND:

- SPT BORING
- N STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT
- GROUNDWATER LEVEL
- W/H WEIGHT OF HAMMER
- SAND
- SANDSTONE

NOTES:

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SCALE: 1"= 60' HORIZONTAL (FOR PLAN VIEW)
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ENVIRONMENT

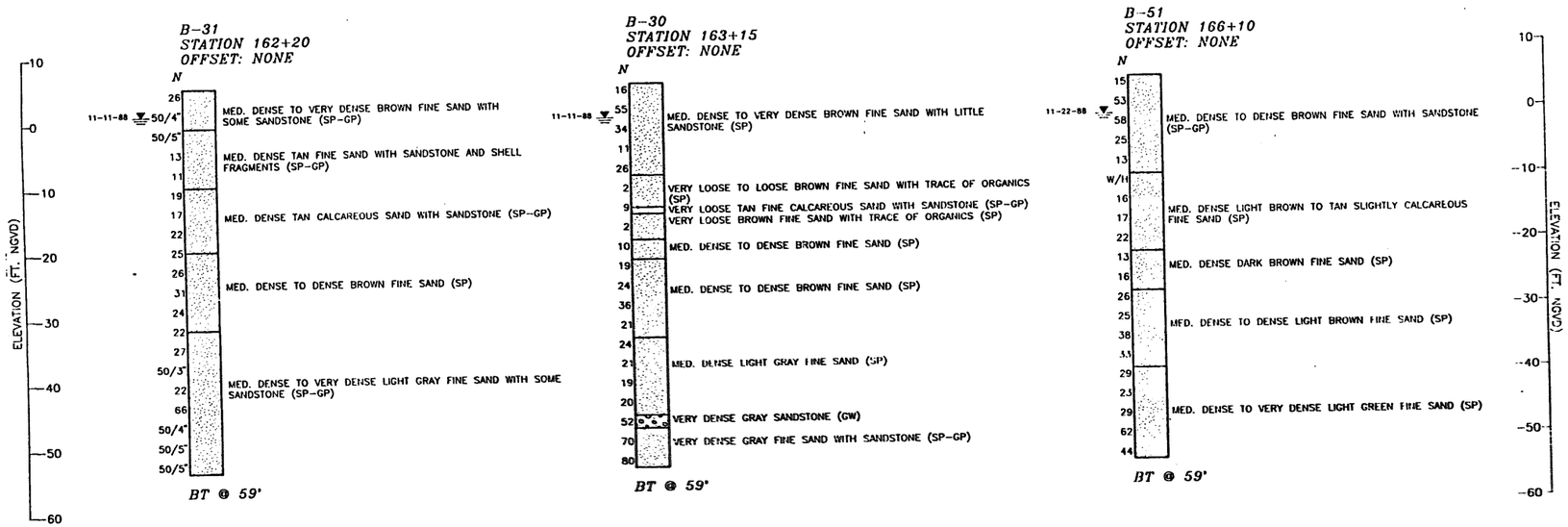
SUBSTRUCTURE: NON-CORROSIVE (SLIGHTLY AGGRESSIVE) SPANS 1-L THRU 6-L AND 1-R THRU 7-R
CORROSIVE (EXTREMELY AGGRESSIVE) SPANS 7-L, 8-L, 8-R AND 9-R

SUPERSTRUCTURE: NON-CORROSIVE (SLIGHTLY AGGRESSIVE) SPANS 1-L THRU 6-L AND 1-L THRU 7-R
CORROSIVE (EXTREMELY AGGRESSIVE) SPANS 7-L, 8-L, 8-R AND 9-R)

860600

Page No. 88

PROFILE OF BORINGS:



APPROVED: TIMOTHY S CARTER, PE

DATE: 3/29/11 P.E. NO.: 39420

WESTINGHOUSE ENVIRONMENTAL AND GEOTECHNICAL SERVICES, INC.

BORING DATA (SHEET 4 OF 4)

OSD GROUP INC. ENGINEERS • SURVEYORS • PLANNERS
TAMPA, FLORIDA

REVISIONS		
Date	By	Description

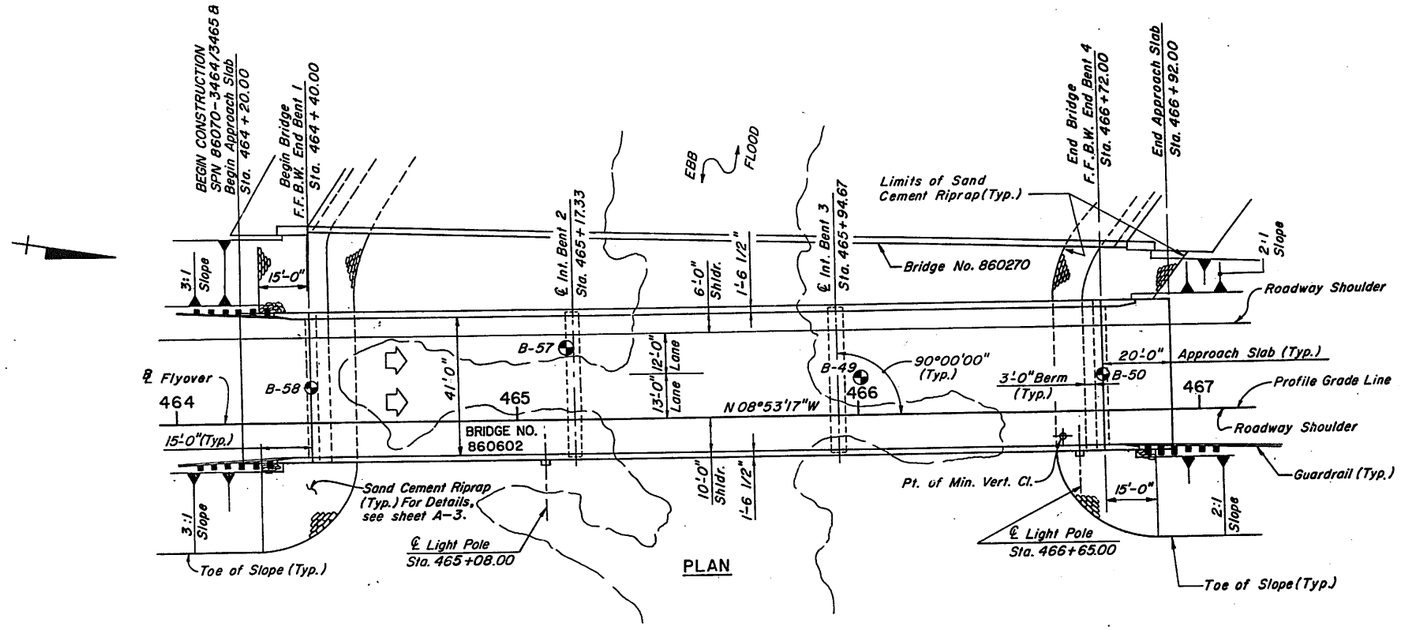
FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

P-N-R ACCESS NO. 1
BRIDGE NO. 860601

ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464/3465

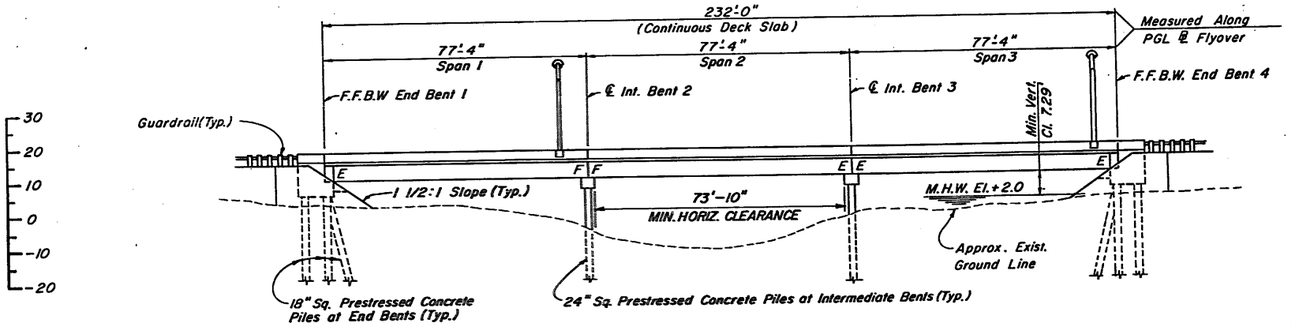
	Names	Dates	APPROVED BY
Designed by			
Checked by			
Quantities by	R.C.	1-6-90	
Checked by	I.C.	3.6.91	Drawing No. / Index No.
Supervised by			

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-IR-95-1(398)27		E-1

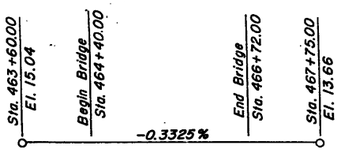


PLAN

INDEX OF SHEETS



ELEVATION



PROFILE GRADE
FLYOVER RAMP

TRAFFIC DATA
2010 A.D.T. = 70,025
Design Speed = 40 M.P.H.
K = 7.7 %
D = 55 %
T = 5 %

860600

Page No. 137

W.P.I. NO. 4140930

GENERAL PLAN AND ELEVATION

REVISIONS		
Date	By	Description

OSA GROUP INC. ENGINEERS • SURVEYORS • PLANNERS
TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

FLYOVER RAMP OVER NORTH FORK OF NEW RIVER; BRIDGE NO. 860602

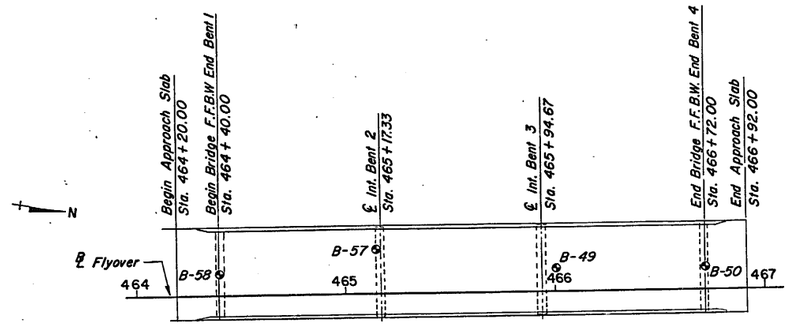
ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464/3465

	Names	Dates
Designed by	DTR	1-89
Checked by	JSR	1-89
Quantities by		
Checked by		
Supervised by	JSR	

APPROVED BY: José S. Rodriguez

Drawing No. | Index No.

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHT. NO.
3	FLA.			E-2



PLAN

SCALE: (HORIZONTAL)

40 0 20 40 80 FT.

LEGEND:

- SPT BORING
- *N* STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT
- GROUNDWATER LEVEL
- SAND

NOTES:

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE SPECIFIED.

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS REPRESENT THE CONDITIONS ENCOUNTERED AT THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND LIMITED LABORATORY TESTING.

PLAN AS SHOWN IS PRELIMINARY FOR REPRESENTATION OF BORING LOCATIONS ONLY AND MAY NOT INDICATIVE OF FINAL CONTRACT PLANS.

SPLIT SPOON SAMPLER:
INSIDE DIAMETER: 1.375 IN.
OUTSIDE DIAMETER: 2.0 IN.
AVG. HAMMER DROP: 30.0 IN.
HAMMER WEIGHT: 140 LBS.

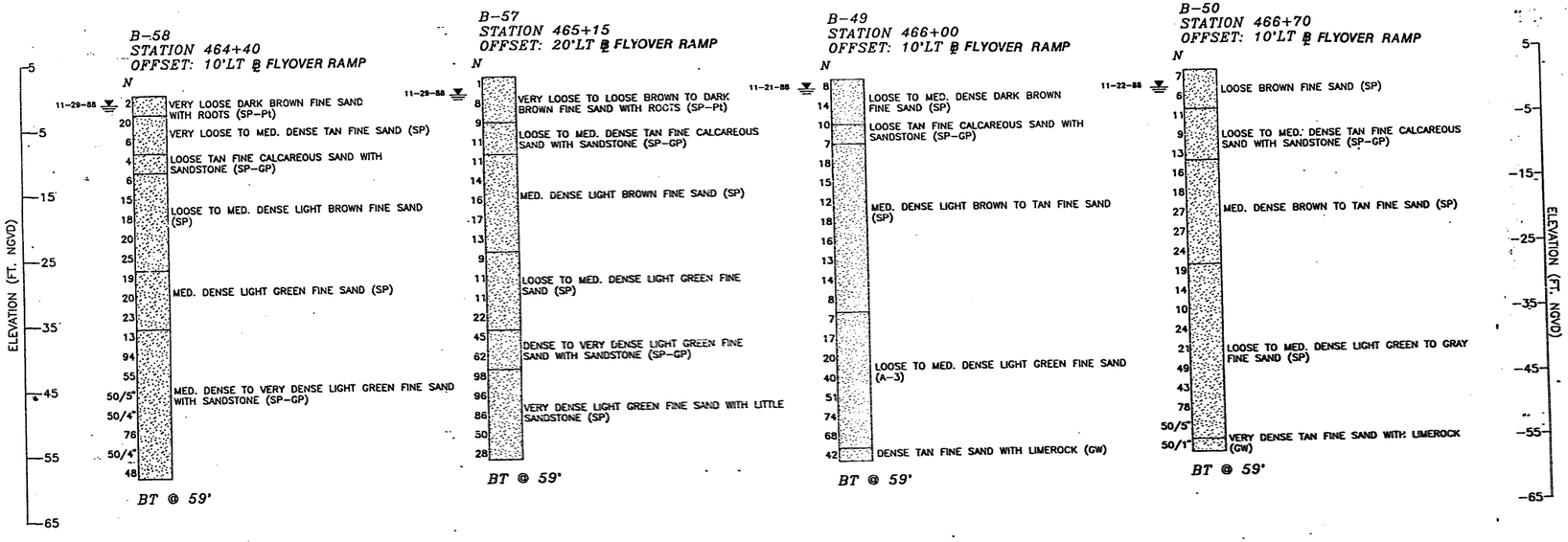
SCALE: 1"= 40' HORIZONTAL (FOR PLAN VIEW)
1"= 10' VERTICAL (FOR PROFILE OF BORINGS)

ENVIRONMENT
SUBSTRUCTURE: *CORROSIVE (EXTREMELY AGGRESSIVE)*
SUPERSTRUCTURE: *CORROSIVE (EXTREMELY AGGRESSIVE)*

860600

Page No. 158

PROFILE OF BORINGS:



BORING DATA

APPROVED: _____ TIMOTHY S. CARTER, P.E.

DATE: P.E. NO.: 39420

WESTINGHOUSE ENVIRONMENTAL AND GEOTECHNICAL SERVICES, INC.

OSA GROUP — ENGINEERS • SURVEYORS • PLANNERS — TAMPA, FLORIDA

REVISIONS		
Date	By	Description

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

FLYOVER RAMP OVER
NORTH FORK OF NEW RIVER

ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3464/3465

	Names	Dates
Designed by	R.W.	3-91
Checked by	T.S.C.	3-91
Quantities by		
Checked by		
Supervised by	T.S.C.	

APPROVED BY _____

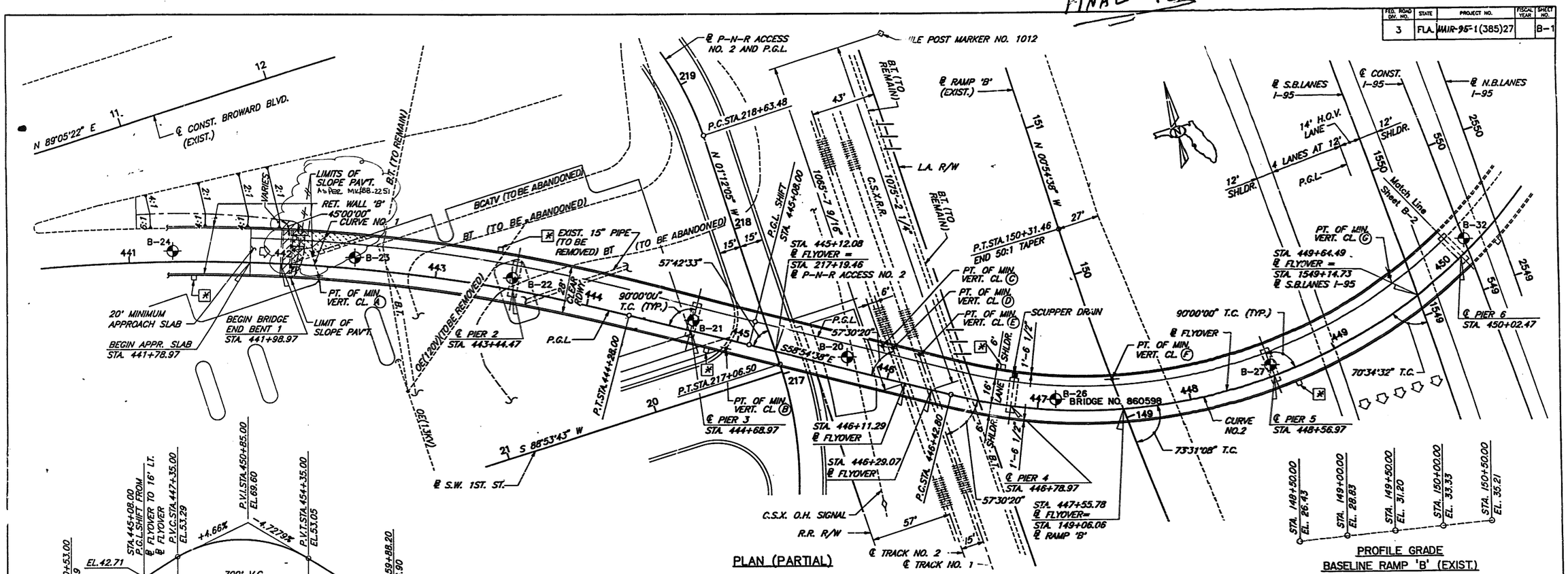
Drawing No. | Index No.

APPENDIX – B3

Existing Soil Boring Information from Previous Projects along the Project Corridor

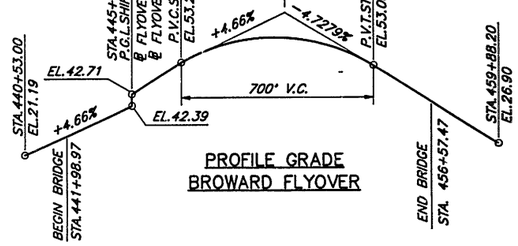
FINAL PLANS

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	WIR-95-1(385)27		B-1

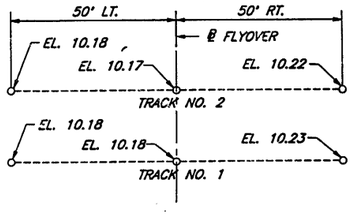


PLAN (PARTIAL)

PROFILE GRADE
BASELINE RAMP 'B' (EXIST.)



PROFILE GRADE
BROWARD FLYOVER



C.S.X. RR.-TOP/RAIL ELEVATIONS

INDEX OF SHEETS

NOTES:

1. ⊕ DENOTES BORING LOCATION.
2. FOR HORIZONTAL CURVE DATA, SUPERELEVATION TRANSITION, AND PROFILE GRADES NOT SHOWN, SEE SHEET B-2.
3. FOR BRIDGE PAY ITEM NOTES, SEE SHEET B-4.
4. [*] DENOTES LIGHT POLE LOCATIONS. SEE TABLE OF LIGHT POLE STATIONS, SHEET B-2.
5. ▨ DENOTES LIMITS OF SLOPE PAVEMENT.

TRAFFIC DATA
1992 ADT = 11,444
2012 ADT = 25,075
K = 7.7%
T = 3.5%
D = 100%
DESIGN SPEED = 30 M.P.H.

860598

Page No. 1

W.P.I. NO. 4140867
GENERAL PLAN (SHEET 1 OF 2)

REVISIONS		
Date	By	Description
6/91	AWZ.	Chgd. FAP. No.

OSP GROUP INC. ENGINEERS • SURVEYORS • PLANNERS TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

BROWARD BLVD. AT I-95
EB-NB FLYOVER RAMP-BRIDGE NO. 860598

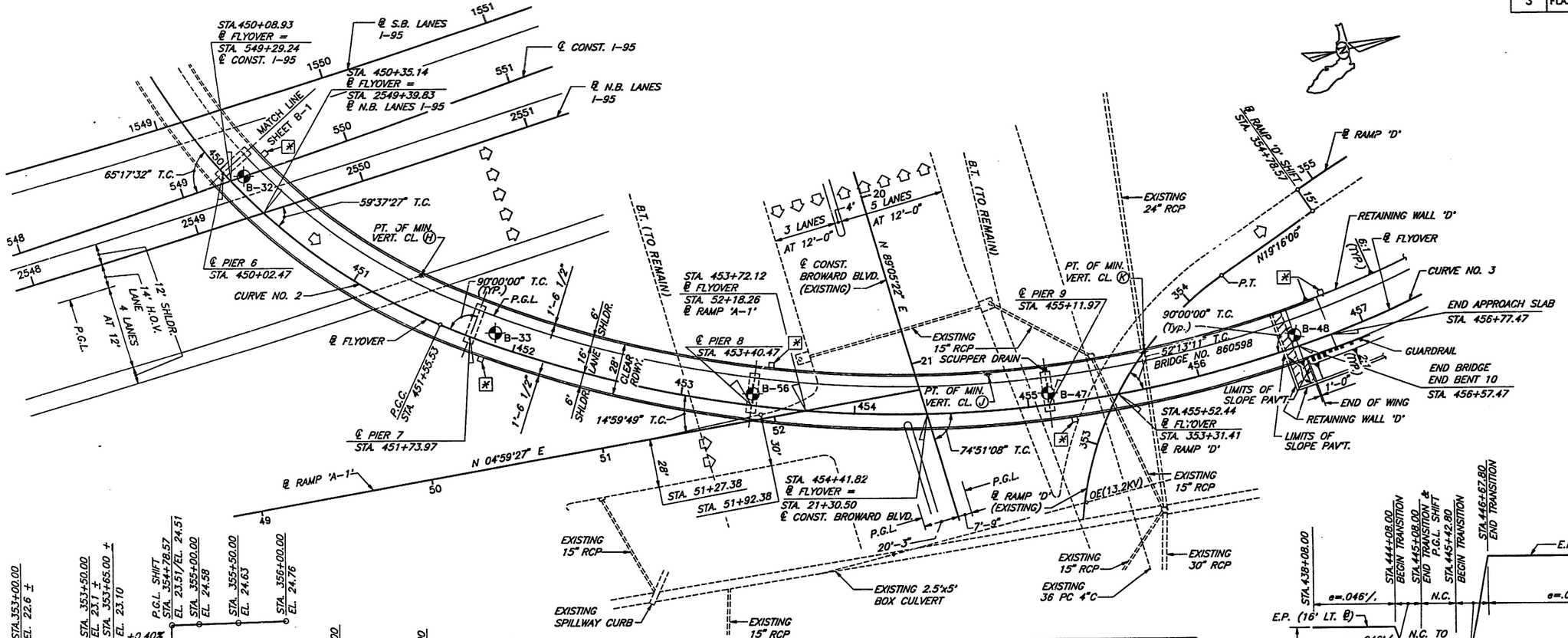
ROAD NO.	COUNTY	PROJECT NO.
842	BROWARD	86070-3493

	Names	Dates
Designed by	RMA	4-91
Checked by	J&R	4-91
Quantities by		
Checked by		
Supervised by	J&R	

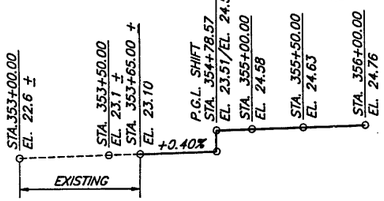
Jose S. Rodriguez

Drawing No. | Index No

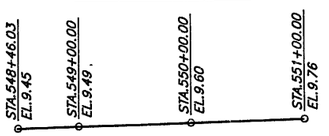
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			B-2



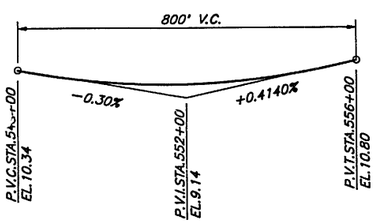
PLAN (PARTIAL)



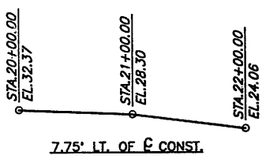
PROFILE GRADE
BASELINE RAMP 'D'



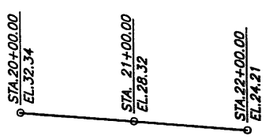
PROFILE GRADE
S.B.LANES I-95



PROFILE GRADE
N.B.LANES I-95

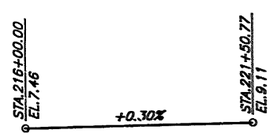


7.75' LT. OF ℄ CONST.



20.25' RT. OF ℄ CONST.

PROFILE GRADES
BROWARD BLVD.

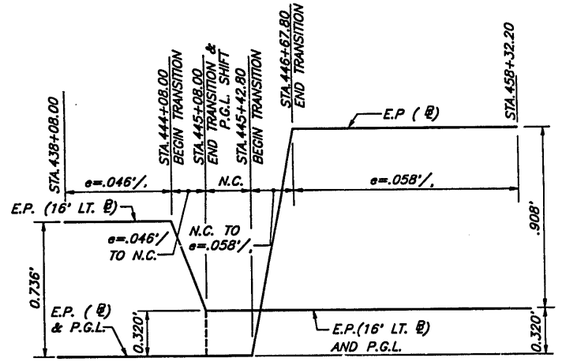


PROFILE GRADE
P-N-R ACCESS NO. 2

NOTES:

1. ⊕ DENOTES BORING LOCATION.
2. FOR TRAFFIC DATA AND PROFILE GRADE –BROWARD FLYOVER, SEE SHEET B-1.
3. ✳ DENOTES LIGHT POLE LOCATIONS. SEE TABLE OF LIGHT POLE STATIONS.
4. ▨ DENOTES LIMITS OF SLOPE PAVEMENT.

TABLE OF LIGHT POLE STATIONS
STATION
441+40.00
443+34.00
444+78.00
446+68.00
448+66.00
450+12.00
451+83.00
453+50.00
455+21.00
456+80.00



SUPERELEVATION TRANSITION

HORIZONTAL CURVE DATA								
	℄ FLYOVER			℄ S.B.LANES I-95	℄ N.B.LANES I-95	℄ CONST. I-95	℄ RAMP 'B'	℄ RAMP 'D'
	CURVE NO.1	CURVE NO.2	CURVE NO.3					
Δ	32°00'00"Rt.	83°13'59"Lt.	58°23'59"Lt.	9°34'05"Lt.	5°38'09"Lt.	7°32'44"Lt.	10°34'37"Rt.	71°38'31"Rt.
D	5°00'00"	16°14'00"	8°15'00"	1°18'41"	0°36'37"	0°45'00"	2°15'00"	30°09'20"
R	1145.92'	352.95'	694.49'	4368.87'	9386.65'	7639.44'	2546.48'	190.00'
T	328.59'	313.54'	388.13'	365.64'	462.02'	503.77'	235.71'	137.14'
L	640.00'	512.73'	707.87'	729.58'	923.30'	1006.08'	470.08'	237.57'
P.C. STA.	437+88.00	446+42.80	451+55.53	1545+09.68	2543+15.96	542+33.18	145+61.38	351+86.16
P.T. STA.	444+28.00	451+55.53	458+63.40	1552+39.26	2552+39.26	552+39.26	150+31.46	354+23.73
P.I. STA.	441+16.59	449+56.34	455+43.67	1548+75.32	2547+77.98	547+36.95	147+97.09	353+23.10
e	0.046 '/'	0.058'/'	0.058'/'	0.037'/'	0.020'/'	———	0.046'/'	0.070'/'

REVISIONS		
Date	By	Description

860598 Page No. 2

GENERAL PLAN (SHEET 2 OF 2)

OSA GROUP INC. ENGINEERS • SURVEYORS • PLANNERS TAMPA, FLORIDA

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

BROWARD BLVD. AT I-95
EB-NB FLYOVER RAMP-BRIDGE NO. 860598

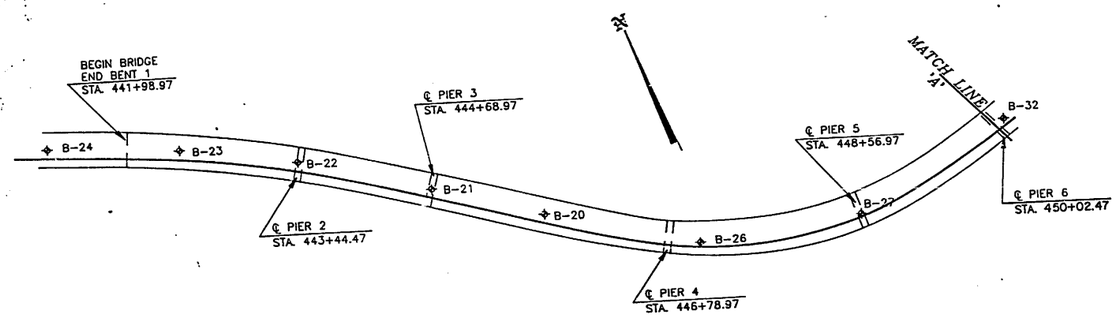
ROAD NO.	COUNTY	PROJECT NO.
842	BROWARD	86070-3493

	Names	Dates
Designed by	~~FAH~~	4-91
Checked by	J&P.	4-91
Quantities by		
Checked by		
Supervised by	J.G.R.	

Jose S. Rodriguez

Drawing No. | Index No.

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			B-5



PLAN

SCALE: (HORIZONTAL)

60 0 30 60 120 FT.

LEGEND:

SPT BORING

N STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT

GROUNDWATER LEVEL

SAND — LIMEROCK — FILL

SAND AND SILT — SANDSTONE

NOTES:

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE SPECIFIED.

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS REPRESENT THE CONDITIONS ENCOUNTERED AT THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND LIMITED LABORATORY TESTING.

PLAN AS SHOWN IS PRELIMINARY FOR REPRESENTATION OF BORING LOCATIONS ONLY AND MAY NOT INDICATIVE OF FINAL CONTRACT PLANS.

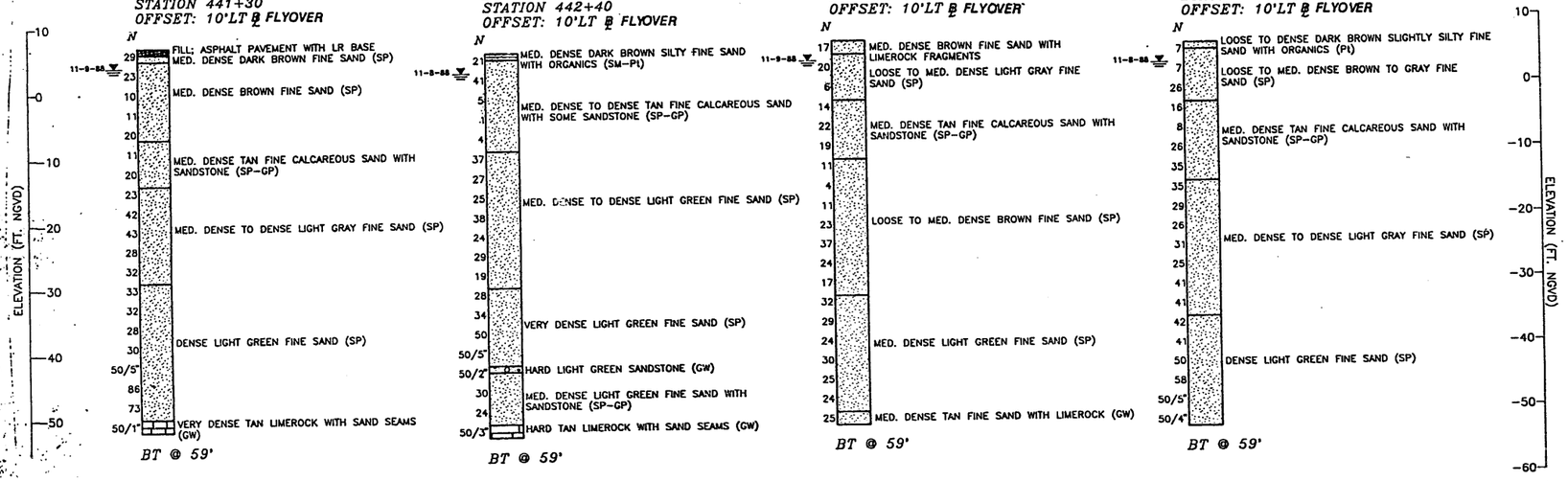
SPLIT SPOON SAMPLER:
INSIDE DIAMETER: 1.375 IN.
OUTSIDE DIAMETER: 2.0 IN.
AVG. HAMMER DROP: 30.0 IN.
HAMMER WEIGHT: 140 LBS.

SCALE: 1"= 60' HORIZONTAL (FOR PLAN VIEW)
1"= 10' VERTICAL (FOR PROFILE OF BORINGS)

ENVIRONMENT
SUBSTRUCTURE: ***NON-CORROSIVE (SLIGHTLY AGGRESSIVE)***
SUPERSTRUCTURE: ***NON-CORROSIVE (SLIGHTLY AGGRESSIVE)***

Page No. 5

PROFILE OF BORINGS:



860598

APPROVED: _____ TIMOTHY S. CARTER, P.E.

DATE: 3/29/91 P.E. NO.: 39420

WESTINGHOUSE ENVIRONMENTAL AND GEOTECHNICAL SERVICES, INC.

BORING DATA (SHEET 1 OF 3)

OSA GROUP P.C. ENGINEERS • SURVEYORS • PLANNERS
TAMPA, FLORIDA

REVISIONS		
Date	By	Description

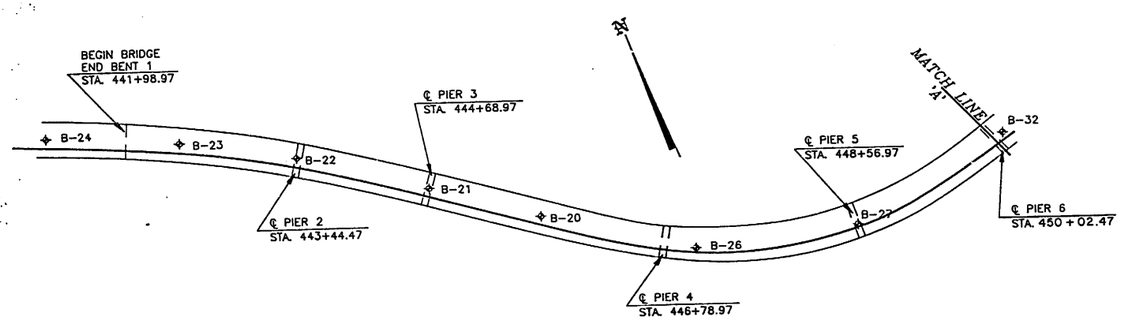
FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

BROWARD BLVD. AT I-95
EB-NB FLYOVER RAMP-BRIDGE NO. 860598

ROAD NO.	COUNTY	PROJECT NO.
842	BROWARD	86070-3493

	Names	Dates	APPROVED BY
Designed by			
Checked by			
Quantities by	RW.	1-6-90	Drawing No. / Index No.
Checked by	TCC	3-29-91	
Supervised by	TBC		

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			B-6



PLAN

SCALE: (HORIZONTAL)

60 0 30 60 120 FT.

LEGEND:

SPT BORING

N STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT

GROUNDWATER LEVEL

SAND

NOTES:

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE SPECIFIED.

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS REPRESENT THE CONDITIONS ENCOUNTERED AT THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND LIMITED LABORATORY TESTING.

PLAN AS SHOWN IS PRELIMINARY FOR REPRESENTATION OF BORING LOCATIONS ONLY AND MAY NOT INDICATIVE OF FINAL CONTRACT PLANS.

SPLIT SPOON SAMPLER:
INSIDE DIAMETER: 1.375 IN.
OUTSIDE DIAMETER: 2.0 IN.
AVG. HAMMER DROP: 30.0 IN.
HAMMER WEIGHT: 140 LBS.

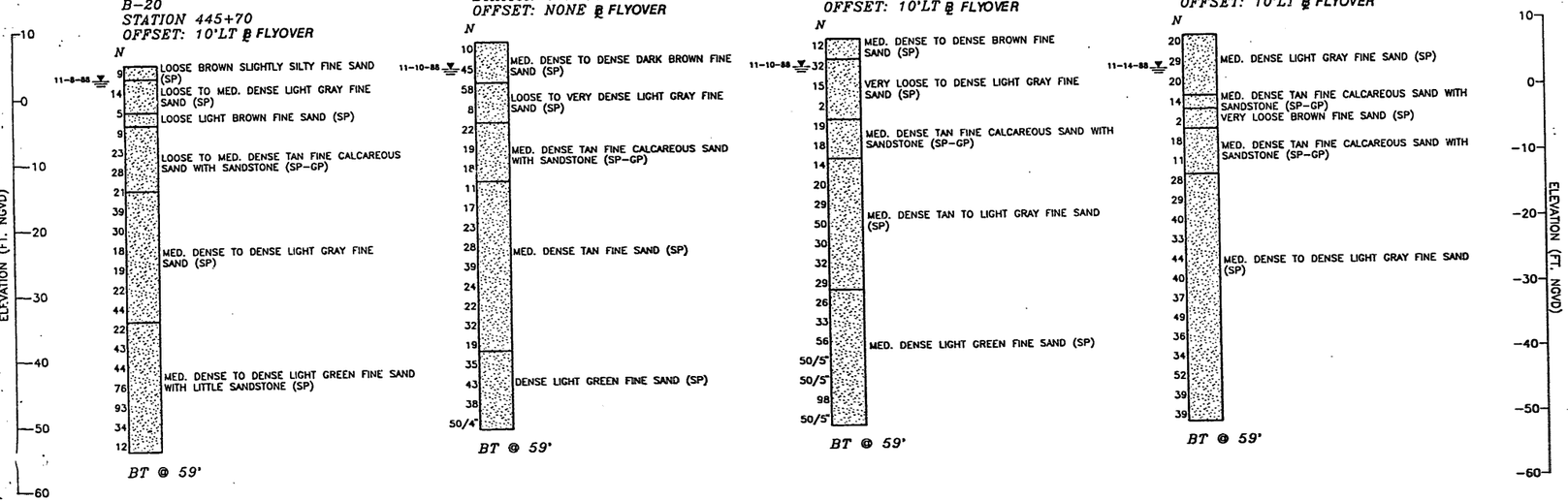
SCALE: 1"= 60' HORIZONTAL (FOR PLAN VIEW)
1"= 10' VERTICAL (FOR PROFILE OF BORINGS)

ENVIRONMENT
SUBSTRUCTURE: *NON-CORROSIVE (SLIGHTLY AGGRESSIVE)*
SUPERSTRUCTURE: *NON-CORROSIVE (SLIGHTLY AGGRESSIVE)*

Page No. 6

860598

PROFILE OF BORINGS:



APPROVED: TIMOTHY S. CARTER, PE

DATE: 3/29/91 P.E. NO.: 39420

WESTINGHOUSE ENVIRONMENTAL AND GEOTECHNICAL SERVICES, INC.

BORING DATA (SHEET 2 OF 3)

OSA GROUP INC. ENGINEERS • SURVEYORS • PLANNERS
TAMPA, FLORIDA

REVISIONS		
Date	By	Description

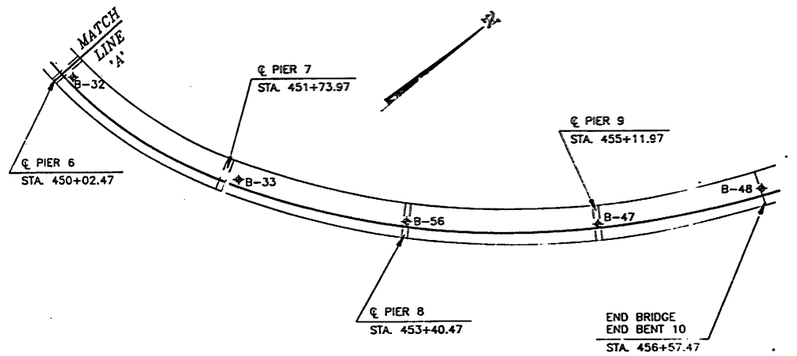
FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

BROWARD BLVD. AT I-95
EB-NB FLYOVER RAMP - BRIDGE NO. 860598

ROAD NO.	COUNTY	PROJECT NO.
842	BROWARD	86070-3493

	Names	Dates	APPROVED BY
Designed by			
Checked by			
Quantities by	R.W.	4-6-90	
Checked by	TSC	3-29-91	Drawing No. / Index No.
Supervised by	TSC		

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			B-7



PLAN

SCALE: (HORIZONTAL)

60 0 30 60 120 FT.

LEGEND:

SPT BORING

N STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT

GROUNDWATER LEVEL

SAND

SAND AND CLAY

NOTES:

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE SPECIFIED.

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS REPRESENT THE CONDITIONS ENCOUNTERED AT THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND LIMITED LABORATORY TESTING.

PLAN AS SHOWN IS PRELIMINARY FOR REPRESENTATION OF BORING LOCATIONS ONLY AND MAY NOT INDICATIVE OF FINAL CONTRACT PLANS.

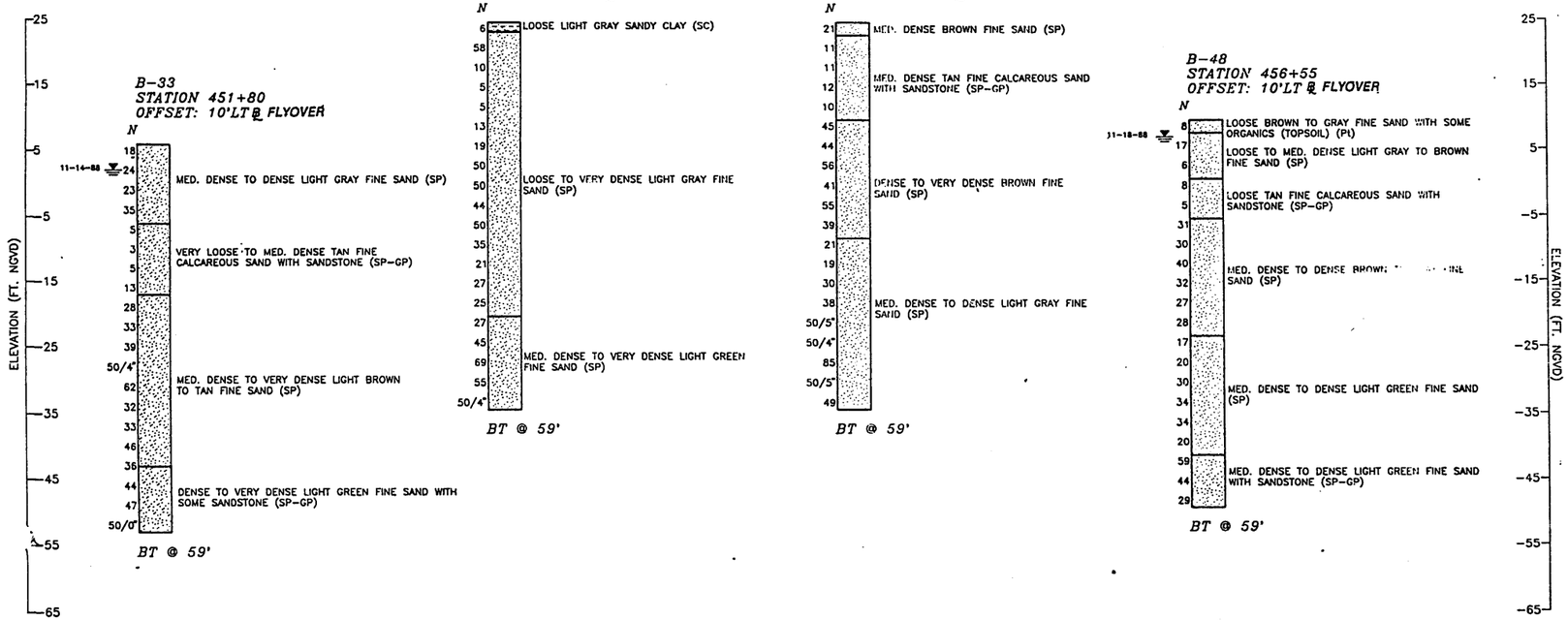
SPLIT SPOON SAMPLER:
INSIDE DIAMETER: 1.375 IN.
OUTSIDE DIAMETER: 2.0 IN.
AVG. HAMMER DROP: 30.0 IN.
HAMMER WEIGHT: 140 LBS.

SCALE: 1"= 60' HORIZONTAL (FOR PLAN VIEW)
1"= 10' VERTICAL (FOR PROFILE OF BORINGS)

ENVIRONMENT
SUBSTRUCTURE: NON-CORROSIVE (SLIGHTLY AGGRESSIVE)
SUPERSTRUCTURE: NON-CORROSIVE (SLIGHTLY AGGRESSIVE)

Page No. 7

PROFILE OF BORINGS:



860598

APPROVED: _____
TIMOTHY S. CARTER, P.E.

DATE: 3/29/91 P.E. NO.: 39420

WESTINGHOUSE ENVIRONMENTAL AND GEOTECHNICAL SERVICES, INC.

BORING DATA (SHEET 3 OF 3)

OSA GROUP INC — ENGINEERS • SURVEYORS • PLANNERS
TAMPA, FLORIDA

REVISIONS		
Date	By	Description

FLORIDA DEPARTMENT OF TRANSPORTATION
BUREAU OF STRUCTURES DESIGN

BROWARD BLVD. AT I-95
EB-NB FLYOVER RAMP-BRIDGE NO. 860598

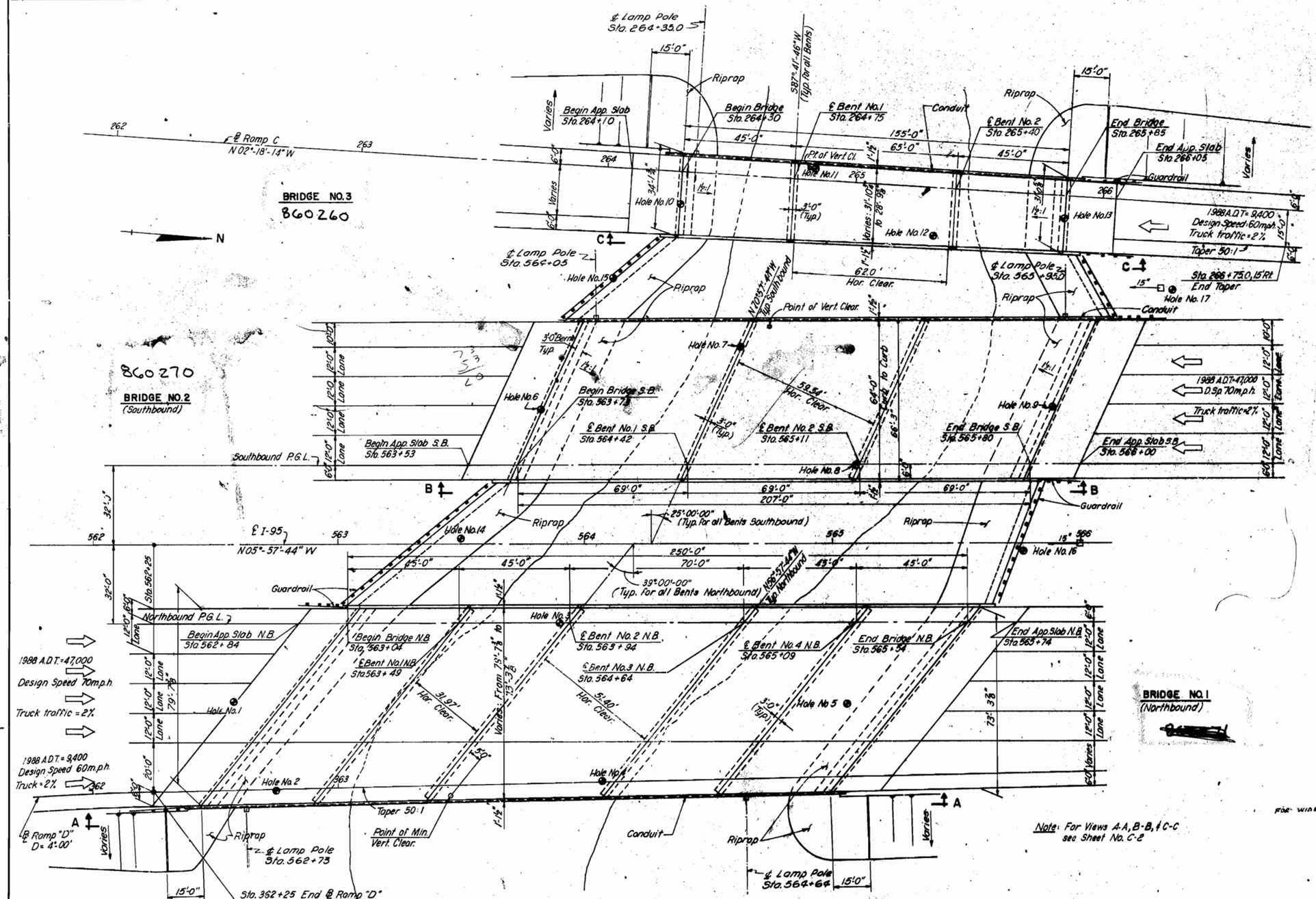
ROAD NO.	COUNTY	PROJECT NO.
842	BROWARD	86070-3493

	Names	Dates	APPROVED BY
Designed by			
Checked by			
Quantities by	RW	9-6-90	Drawing No. / Index No.
Checked by	TSC	3-29-91	
Supervised by	TSC		

APPENDIX – B4

Existing Soil Boring Information from Previous Projects along the Project Corridor

FED. ROAD DIV. No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
9	FLA.	I-95-1(110)27		C-1



PLAN

Note: For Views A-A, B-B, & C-C see Sheet No. C-2

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: F.S.R.D. Standard Specifications for Road and Bridge Construction, 1986 Edition and Special Provisions.

DESIGN SPECIFICATION: A.A.S.H.O. Specifications for Highway Bridges, 1969 Edition and approved revisions.

DESIGN LIVE LOADING: HS 20-44 (Modified for Military Loading as required) with allowance for 15 lbs. per square foot for future wearing surfaces.

MAXIMUM WORKING STRESSES:

Reinforcing Steel	=	20,000 P.S.I.
Concrete: Class A	=	1,200 P.S.I.
Class AA	=	1,360 P.S.I.
Class B	=	1,500 P.S.I.
Class P	=	2,000 P.S.I.

MINIMUM 28 DAY CONCRETE STRENGTH:

Class A	=	3,000 P.S.I.
Class AA	=	3,400 P.S.I.
Class B	=	3,750 P.S.I.
Class P	=	5,000 P.S.I.

REINFORCING STEEL: All reinforcing steel shall be intermediate or hard grade.

SURFACE FINISH: A Class 1 Surface finish shall be given to those surfaces specified in Article 400-22.2 of the general specifications, except outside faces of exterior beams, which shall be given an Special Finish.

CHAMFER: All exposed concrete edges, unless otherwise indicated, shall be chamfered 3/4".

I-95 OVER N. FORK OF NEW RIVER

* FOR STD. SHTS. SEE 860257 PAGE 1 THRU PAGE 6 FOR WIDENING PROJECT ROAD 1-95 (SR 9) SEE PGS. 1A THRU 1G

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Page No. 1

GENERAL PLAN

STATE ROAD DEPARTMENT OF FLORIDA
STRUCTURES DIVISION

I-95 OVER
NORTH FORK OF NEW RIVER

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	9	BROWARD	86070-3436

	Names	Dates
Designed by	F.G./R.I.	6-70
Checked by	V.A.A.	6-70
Quantities by		
Checked by		
Supervised by	V.A.A.	

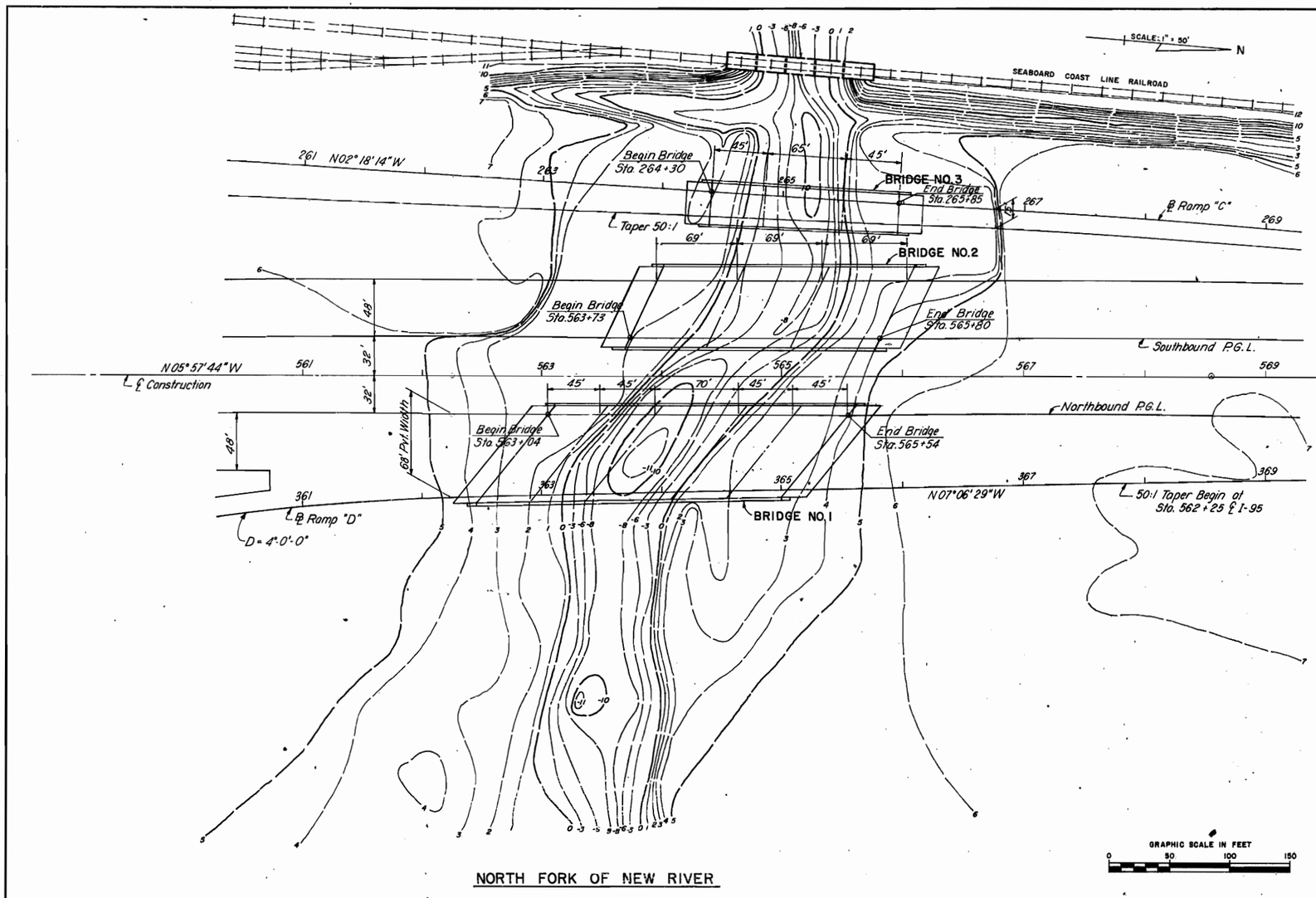
APPROVED BY _____ Engineer of Structures

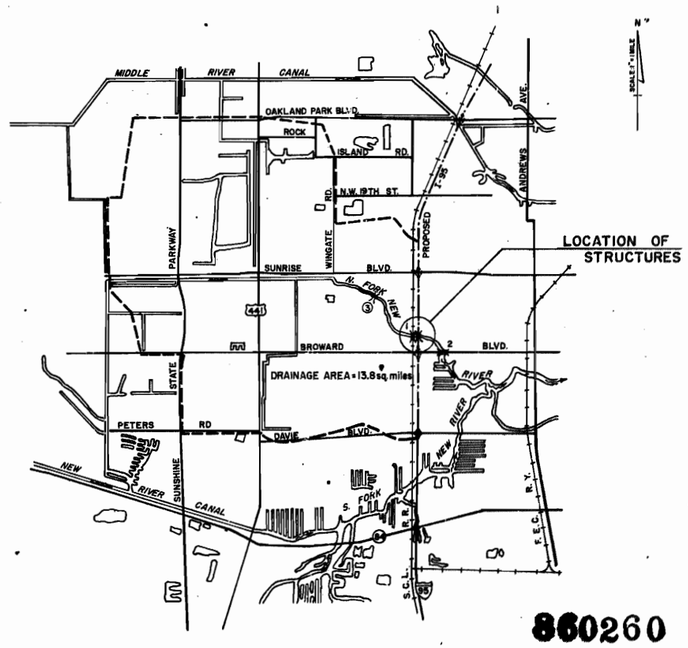
Drawing No. 1 of 44

Index No. 10884

RADER AND ASSOCIATES, MIAMI, FLA.

FED. ROAD DIV. No.	STATE	PROJECT No.	FISCAL YEAR	SHEET No.
3	FLA.	I-95-1(110)27		C-3





860260

Page No. 3

GRAPHIC SCALE IN MILES
0 1 2 3

DRAINAGE AREA & LOCATION

EXISTING STRUCTURES

(REFERENCE)	(1)	(2)	(3)	(4)	(5)
FOUNDATION	CONCRETE PILES	CONCRETE PILES			
OVERALL LENGTH	119.00'	75'	80'		
SPAN LENGTH	1@23.5', 3@24.0', 1@23.5'	15'	2@ 25', 1@ 30'		
TYPE CONSTRUCTION	CONCRETE	FLAT SLAB	FLAT SLAB		
SIDEWALKS	NONE	2@ 5'	2@ 5'		
ROADWAY WIDTH	SINGLE TRACK R.R	50'	64'		
ELEV LOW MEMBER	8.19'	—	—		

DESIGN DATA

STRUCTURE RECOMMENDATIONS
1. LOADING
2. BRIDGE ROADWAY WIDTH FT.
3. SIDEWALKS

DRAINAGE RECOMMENDATIONS
1. BEGIN BRIDGE STATION END BRIDGE STATION
2. CENTERLINE GRADE ELEVATION
3. BRIDGE SKEW ANGLE
4. CHANNEL BOTTOM, WIDTH VARIES ELEVATION VARIES SIDE SLOPES VARIES
   CENTERLINE CHANNEL BOTTOM, STATION VARIES
   LIMITS OF CHANNEL EXCAVATION RT. — LT. —
5. CLEARANCE: NAVIGATION: HORIZ. NOT APPLICABLE DRIFT: HORIZ. 25'-0" ±
   VERT. 6.0' ABOVE EL. +22 VERT. 3' ABOVE EL. 3.9'
6. DRAINAGE AREA 13.8 Sq. Mi.
7. WATER STAGE DATA:

	MAX. STAGE OF RECORD	DESIGN H.W.	NORMAL FLOW ELEV.
ELEVATION	6.5 M.S.L.*	3.9 **	2.2 (Spring tide)
DATE OF OCCURRENCE	SEPT. 17, 1947*		
RECURRENCE INTERVAL	UNKNOWN *	200 yr.	

8. DESIGN DISCHARGE 1920 *** CFS SOURCE CORPS OF ENGINEERS, JACKSONVILLE, FLORIDA
   RECURRENCE INTERVAL 200+*** YEARS
9. DESIGN VELOCITY ① 1.8, ② 1.8, ③ 2.6 FPS

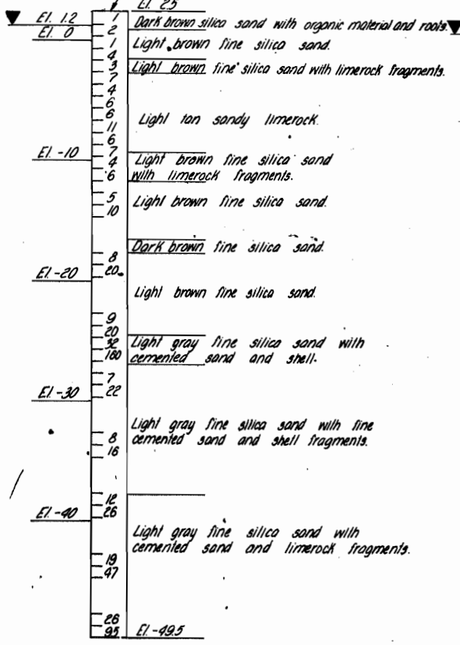
REMARKS: * TIDAL FLOODING DUE TO THE SEPT. 17, 1947 HURRICANE (SEE "FLOOD PLAIN INFORMATION, BROWARD COUNTY, FLA." PREPARED BY THE U.S. ARMY ENGINEERING DISTRICT, JACKSONVILLE, CORPS OF ENGINEERS.)
** +2.2 MSL IS THE MAXIMUM FLOOD OF RECORD WITH EXISTING DRAINAGE CONDITIONS. DESIGN WATER SURFACE ELEVATION FOR THE 50% STANDARD PROJECT STORM WAS + 2.3 M.S.L. (CORPS OF ENGINEERS)
*** THE DESIGN DISCHARGE OF 1920 C.F.S. REPRESENTS THE RUNOFF FROM THE STANDARD PROJECT STORM WITH A RECURRENCE INTERVAL OF IN EXCESS OF 200 YEARS.

RECOMMENDED DISTRICT DR. ENGR.
APPROVED ENGINEER OF DRAINAGE

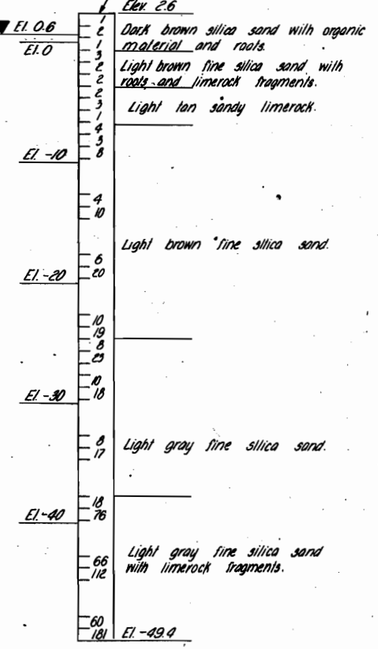
Note: For Bridges Elevation see Sheet No. C-2

FED. ROAD DIV. No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-95-1(100)27		C-4

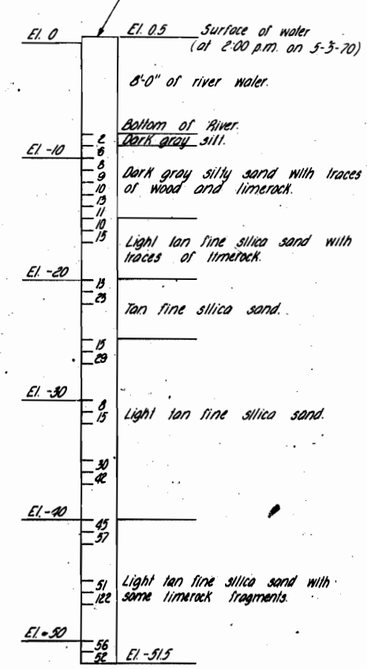
HOLE NO. 1
Sta. 562+67, 7' left.
Blow Count



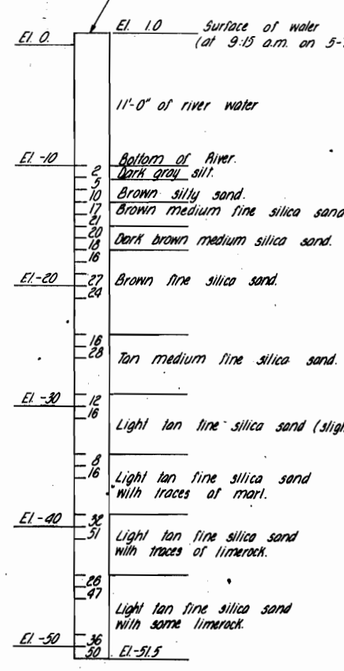
HOLE NO. 2
Sta. 562+84, 29' right.
Blow Count



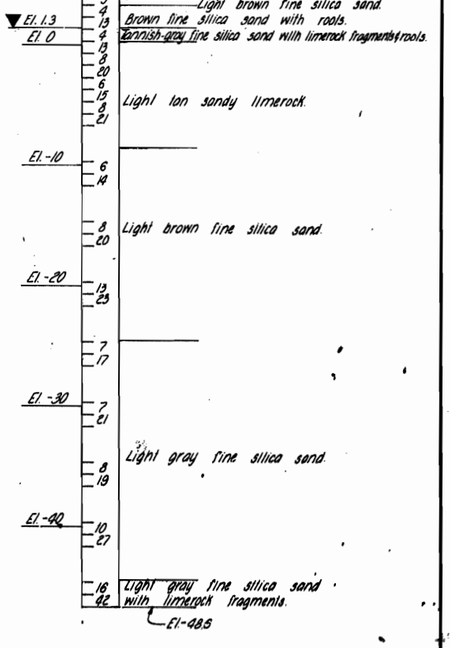
HOLE NO. 3
Sta. 564+00, 32' left.
Blow Count



HOLE NO. 4
Sta. 564+13, 33' right.
Blow Count



HOLE NO. 5
Sta. 565+13, 6' right.
Blow Count



LEGEND

▼ Ground Water Elevation

BORING EQUIPMENT

Type of Rig : FW - BX
Spoon Inside Diameter : 1.5"
Outside Diameter : 2.0"
Casing Inside Diameter : 2.5"
Outside Diameter : 3.0"
Hammer Weight : 300 Lbs.
Hammer Drop : 18" (holes 1, 2, 3, 4, 5, 6, 10, 11, 14, 15)
30" (holes 7, 9, 12, 13, 16, 17)
Split Spoon : 2' (holes 1, 2, 3, 4, 5, 6, 10, 11, 14, 15)
: 5' (holes 7, 9, 12, 13, 16, 17)
Borings by Wingerter Laboratories, Inc.
May 1, 1970

Note: Blow Count refer to Hammer Blows on Sampler

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Page No. 4

BORING DATA

RADER AND ASSOCIATES INC. MIAMI, FLA

REVISIONS	
Dates	Descriptions

STATE ROAD DEPARTMENT OF FLORIDA
STRUCTURES DIVISION

I-95 BRIDGES OVER
NORTH FORK OF NEW RIVER

ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3436

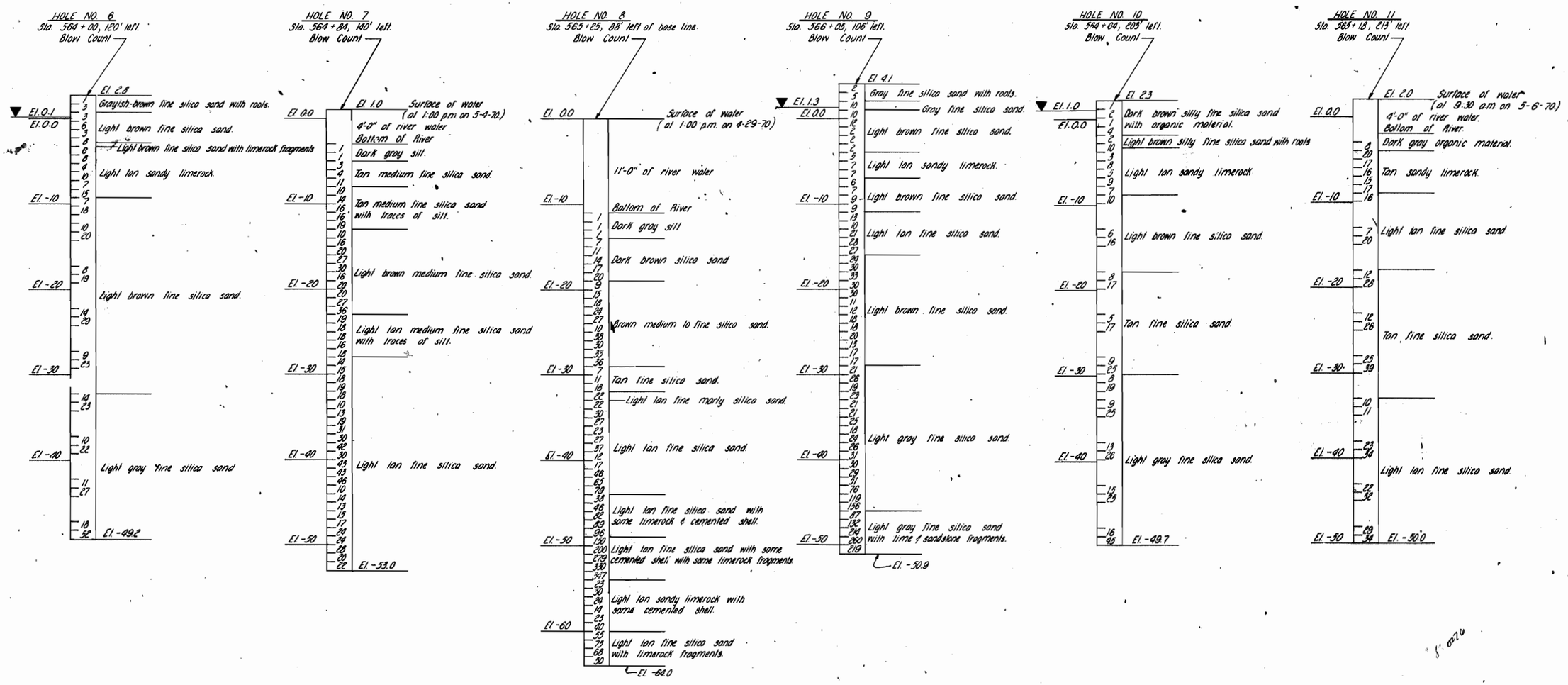
	Names	Dates
Designed by	O.N.	6-70
Checked by	V.A.A	6-70
Quantities by		
Checked by		
Supervised by	V.A.A.	

APPROVED BY

Engineer of Structures

Drawing No.	Index No.
4 of 44	10884

FED. ROAD DIV. No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-95-1(110)27		C-5



LEGEND
▼ Ground Water Elevation

Note: Blow Count refer to Hammer Blows on Sampler.

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For Note on Boring Equipment See Sheet No. C-4

BORING DATA

STATE ROAD DEPARTMENT OF FLORIDA
STRUCTURES DIVISION

I-95 BRIDGES OVER
NORTH FORK OF NEW RIVER

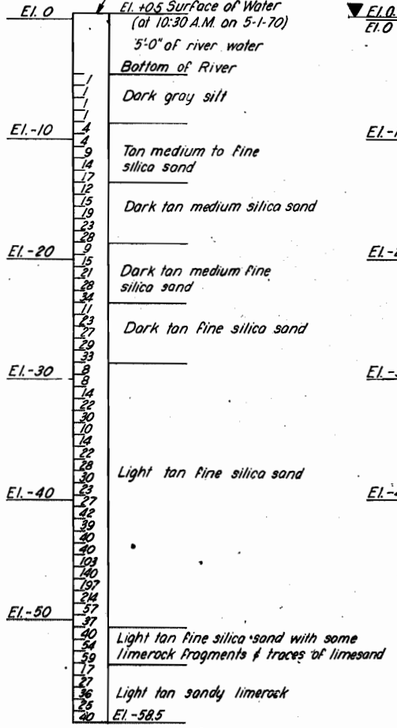
REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	9	BROWARD	86070--3436

	Names	Dates	APPROVED BY
Designed by	A.M.	6-70	
Checked by	T.C.	6-70	Engineer of Structures
Quantities by			
Checked by			Drawing No. 5 of 44
Supervised by	V.A.A.		Index No. 10884

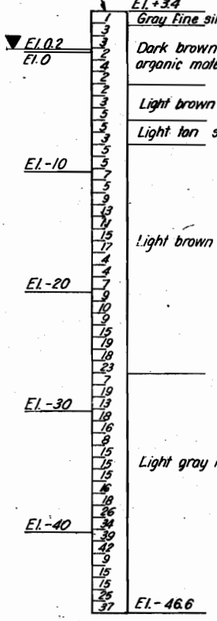
RADER AND ASSOCIATES INC. MIAMI, FLA.

FED. ROAD DIV. No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-95-1(110)27		C-6

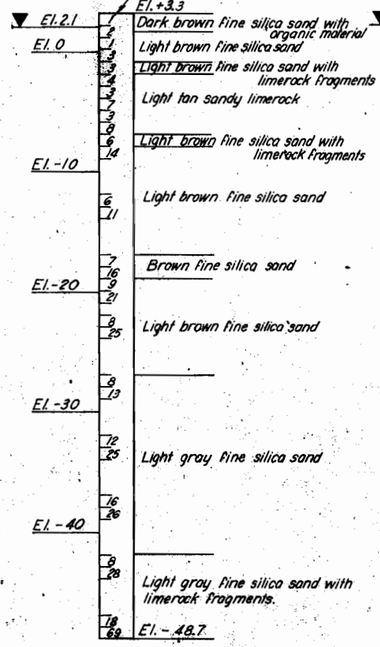
HOLE NO. 12
Sta. 565+65, 180' left
Blow Count



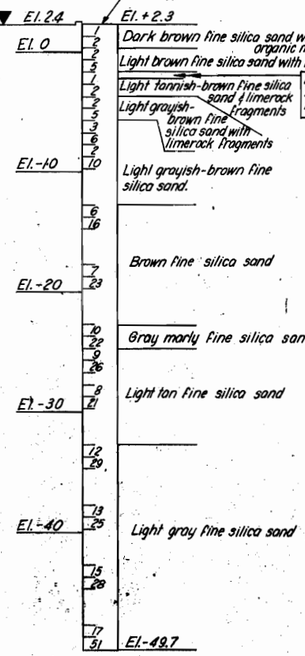
HOLE NO. 13
Sta. 566+16, 185' left
Blow Count



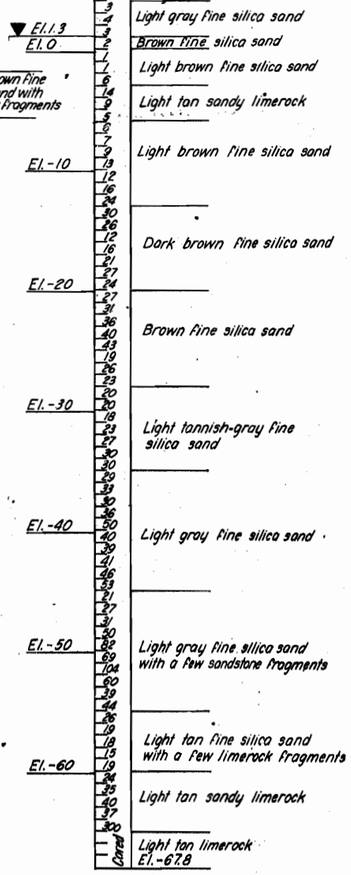
HOLE NO. 14
Sta. 563+65, 70' left
Blow Count



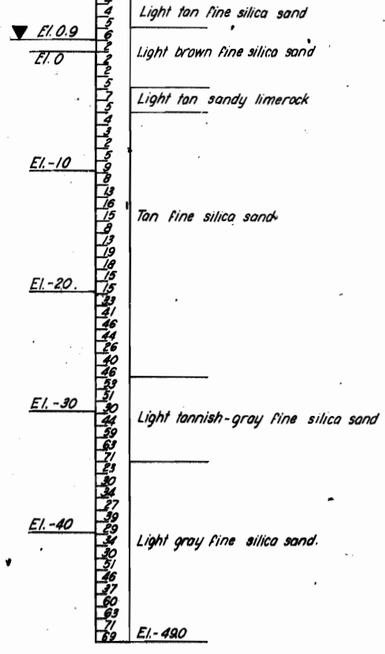
HOLE NO. 15
Sta. 564+25, 175' left
Blow Count



HOLE NO. 16
Sta. 565+90, 50' left
Blow Count



HOLE NO. 17
Sta. 566+48, 155' left
Blow Count



Note: Blow Count refer to Hammer Blows on Sampler.

LEGEND
▼ Ground Water Elevation

860260

Page No. 6

For Note on Boring Equipment see Sheet No. C-4

BORING DATA

STATE ROAD DEPARTMENT OF FLORIDA
STRUCTURES DIVISION

I-95 BRIDGES OVER
NORTH FORK OF NEW. RIVER

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	9	BROWARD	86070-3436

	Names	Dates
Designed by	R.I.	6-70
Checked by	T.C.	6-70
Quantities by		
Checked by		
Supervised by	V.A.A.	

APPROVED BY _____ Engineer of Structures

Drawing No. 6 of 44

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RADER AND ASSOCIATES INC. MIAMI, FLA.

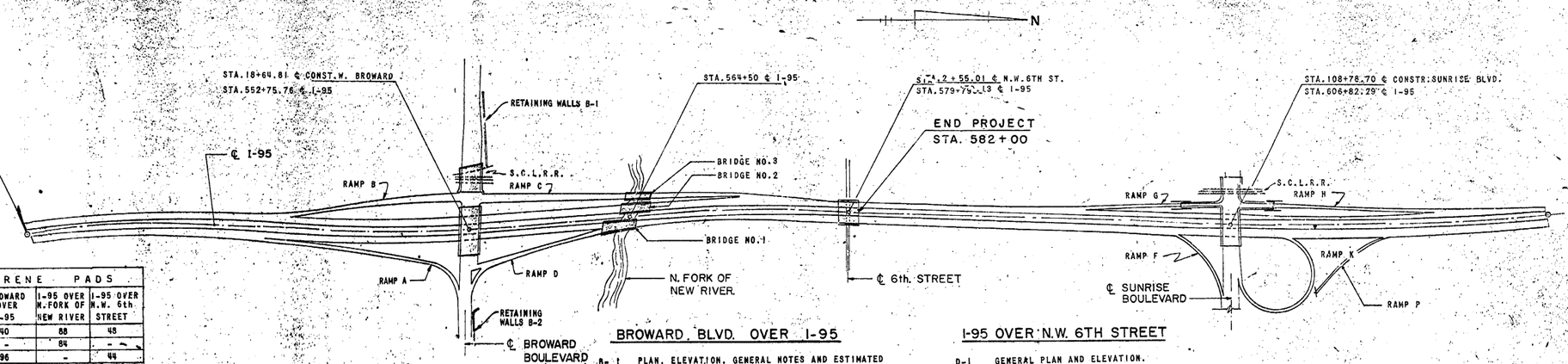
APPENDIX – B5

Existing Soil Boring Information from Previous Projects along the Project Corridor

REVISED 1/18/73

S | FLA | I-95-1(11)027

BEGIN PROJECT
STA. 520+78.76



SUMMARY OF NEOPRENE PADS

ITEM	BROWARD OVER S.C.L.R.R.	BROWARD OVER I-95	I-95 OVER N.FORK OF NEW RIVER	I-95 OVER N.W. 6th STREET
Composite Neoprene Pad Type II Beams	50	40	88	48
Composite Neoprene Pad Type III Beams	18	-	84	-
Composite Neoprene Pad Type IV Beams	52	96	-	44

SUMMARY OF ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	BROWARD OVER S.C.L.RR	BROWARD OVER I-95	I-95 OVER N.FORK OF NEW RIVER	I-95 OVER N.W. 6TH ST	WALLS "B"	TOTAL
400-1-4	Class A Concrete (Superstructure)	Cu.Yd.	764	671	558	259		2,252
400-1-5	Class A Concrete (Substructure)	Cu.Yd.	321	611	394	428		1,754
400-2-4	Class A-A Concrete (Superstructure)	Cu.Yd.	93	226	458	290		1,067
400-6-1	Concrete Handrail (Safety Curb)	Lin.Ft.	---	---	1,229	694		1,923
400-6-2	Concrete Handrail (Sidewalk)	Lin.Ft.	444	625	---	---		1,069
415-1-2	Reinforcing Steel (Bridge)	Lb.	253,000	273,870	347,485	218,050	94,400	1,186,805
400-1-11	Class A Concrete (Retaining Walls)	Cu.Yd.					773	773
450-1-1	Prestressed Beams (Type II)	Lin.Ft.	1,054	723	1,950	888		4,615
450-1-2	Prestressed Beams (Type III)	Lin.Ft.	616	---	2,863			3,479
450-1-3	Prestressed Beams (Type IV)	Lin.Ft.	2,135	5,047	---	1,449		8,631
524-1-18	Concrete Ditch Pavement (3" Thick)	Sq. Yd.					30	30
455-3-2	Precast Concrete Piling Furnished (18"□) (Prestressed)	Lin.Ft.	2,550	7,275	4,390	5,650	4,965	24,830
455-3-3	Precast Concrete Piling Furnished (20"□) (Prestressed)	Lin.Ft.	2,100	---	3,545	---		5,645
455-4-2	Precast Concrete Piling Driven (18"□) (Prestressed)	Lin.Ft.	2,550	7,275	4,390	5,650	4,965	24,830
455-4-3	Precast Concrete Piling Driven (20"□) (Prestressed)	Lin.Ft.	2,100	---	3,545	---		5,645
455-9-12	Unloaded Test Piles (18"□) (Prestressed)	Lin.Ft.	50	180	340	180	80	830
455-9-13	Unloaded Test Piles (20"□) (Prestressed)	Lin.Ft.	150	---	285	---		435
455-10-90	Test Loads (90 Tons)	Each	1	1	3	1	1	7
455-10-130	Test Loads (130 Tons)	Each	1	---	3	---		4
455-55-2	Pile Splices (18"□) (Concrete)	Each	25	30	55	10	5	115
455-55-3	Pile Splices (20"□) (Concrete)	Each	20	---	35	---		55
520-2-2	Concrete Slope Pavement (6" Thick)	Sq.Yd.	---	1,680	---	1,970		3,650
530-18	Rip-Rap (Sand Cement)	Cu.Yd.	440	---	365	---		805
515-1-1	Pipe Handrail (Steel)	Lin. Ft.					384	384
515-1-2	Pipe Handrail (Aluminum)	Lin. Ft.					384	384

NOTES: PAYMENT FOR INCIDENTAL ITEMS NO. SPECIFICALLY COVERED IN INDIVIDUAL BID ITEMS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICES FOR BID ITEMS.

TEST LOADS MAY BE INCREASED IN NUMBER OR OMITTED AS DIRECTED BY THE ENGINEER.

ALL COMPOSITE NEOPRENE BEARING PADS SHALL BE FURNISHED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION.

INCLUDES 63 CU.YDS. FOR CRASH WALL.

INCLUDES 3,150 LBS. FOR CRASH WALL.

INDEX OF SHEETS

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Page No. 1

LOCATION PLAN, INDEX OF SHEETS AND ESTIMATED BRIDGE QUANTITIES

STATE ROAD DEPARTMENT OF FLORIDA
STRUCTURES DIVISION

INTERSTATE ROUTE I-95
STATION 520+78.76 TO STATION

REVISIONS Dates	Descriptions

ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-343

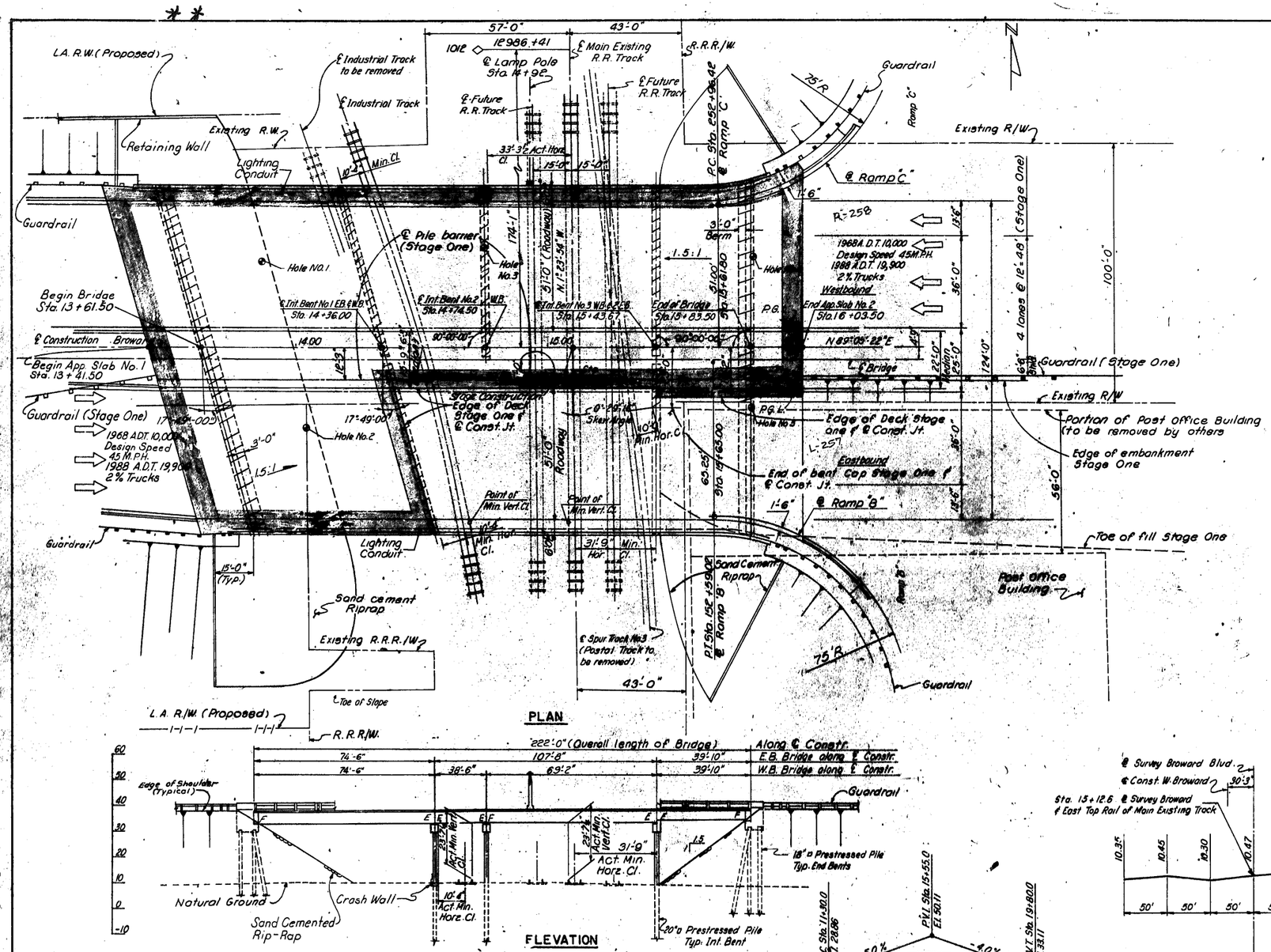
	Names	Dates	APPROVED BY
Designed by	R.L.	10-70	
Checked by	V.A.A.	10-70	T. Adler
Quantities by	[illegible]	4-71	
Checked by	V.A.A.	9-71	
Corrected by	V.A.A.		

Drawing No. 1 of 6

RADER AND ASSOCIATES, INC. - MIAMI, FLA.

REVISED 1-19-73

FED. ROAD DIV. No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-95-1(410)27		A-1



GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: F.S.R.D. Standard Specifications for Road and Bridge Construction, 1966 Edition and Special Provisions.

DESIGN SPECIFICATION: A.A.S.H.O. Specifications for Highway Bridges, 1969 Edition with approved revisions.

DESIGN LIVE LOADING: HS 20-44 with allowance for 15 lbs. per sq.ft. for Future Wearing Surface.

MAXIMUM WORKING STRESSES:

Reinforcing Steel		=	20,000 P.S.I.
Concrete:	Class A	=	1,200 P.S.I.
	Class AA	=	1,360 P.S.I.
	Class B	=	1,500 P.S.I.
	Class P	=	2,000 P.S.I.

MINIMUM 28 DAY CONCRETE STRENGTH:

Class A	=	3,000 P.S.I.
Class AA	=	3,400 P.S.I.
Class B	=	3,750 P.S.I.
Class P	=	5,000 P.S.I.

REINFORCING STEEL: All reinforcing steel shall be intermediate or hard grade.

SURFACE FINISH: A Class 1 Surface Finish shall be given to those surfaces specified in Article 960-22.5 of the general specifications, except outside faces of exterior beams, which shall be given no Special Finish.

CHAMFER: All exposed concrete edges, unless otherwise indicated, shall be chamfered 3/4".

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	I T E M	UNIT	TOTAL
400-1-4	Class A Concrete (Superstructure)*	Cu.Yd.	764
**400-1-5	Class A Concrete (Substructure)	Cu.Yd.	321
400-2-4	Class AA Concrete (Superstructure)	Cu.Yd.	98
400-6-2	Concrete Handrail (Sidewalk)	Lin.Ft.	444
**415-1-2	Reinforcing Steel (Bridge)	Lb.	253,000*
450-1-1	Prestressed Beams (Type II)	Lin.Ft.	1,054
450-1-2	Prestressed Beams (Type III)	Lin.Ft.	816
450-1-3	Prestressed Beams (Type IV)	Lin.Ft.	2,136
455-3-2	Precast Concrete Piling Furnished (18"□) Prestressed	Lin.Ft.	2,880
455-3-3	Precast Concrete Piling Furnished (20"□) Prestressed	Lin.Ft.	2,100
455-4-2	Precast Concrete Piling Driven (18"□) Prestressed	Lin.Ft.	2,880
455-4-3	Precast Concrete Piling Driven (20"□) Prestressed	Lin.Ft.	2,100
455-8-12	Unloaded Test Piles (18"□) Prestressed	Lin.Ft.	60
455-9-13	Unloaded Test Piles (20"□) Prestressed	Lin.Ft.	130
455-10-90	Test Loads (90 Tons)	Each	1
455-10-130	Test Loads (130 Tons)	Each	1
455-55-2	Pile Splices (18"□) Concrete	Each	25
455-55-3	Pile Splices (20"□) Concrete	Each	20
530-1	Rip-Rap (Sand-Cement)	Cu.Yd.	440

Composite Neoprene Pads, No. Required:
Type II Beams = 50
Type III Beams = 18
Type IV Beams = 52

All Composite Neoprene Pads will be furnished by the Florida Department of Transportation.

* Includes 83 Cu.Yds. for Crash Wall.
** Includes 3756 Lbs. for Crash Wall.

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TEST PILE SCHEDULE

DRIVE UNLOADED TEST PILES AS SHOWN IN SCHEDULE, IN THE POSITION OF PERMANENT PLUMB PILES, AS DIRECTED BY THE ENGINEER.

END BENT NO. 1 W.B.: 18"□ x 60'-0"
1. BENT NO. 1 E.B.: 20"□ x 50'-0"
1. BENT NO. 2 W.B.: 20"□ x 50'-0"
1. BENT NO. 3 W.B.: 20"□ x 50'-0"

NOTE:

This Project has been designed to allow for Two Stage Construction.

STAGE ONE: The Northern Portion of the Post Office Building (Shown with dashed lines) will be removed. This will permit the Construction of the embankment at the end of Bridge (See Toe of Slope on Plan). The Limits of the Bridge Structures to be Built at this Stage are shown with shaded areas on Plan View.

Construct temporary guardrail sufficient to prevent traffic from entering incomplete side of Bridge.

SECOND STAGE: The Remaining Part of the Post Office Building will be removed (by others) and the Construction of the Bridge Completed.

PLAN, ELEVATION, GENERAL NOTES AND ESTIMATED BRIDGE QUANTITIES

STATE ROAD DEPARTMENT OF FLORIDA
STRUCTURES DIVISION

BROWARD BOULEVARD OVER S.C.L.R.R.

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	9	BROWARD	86070-3436

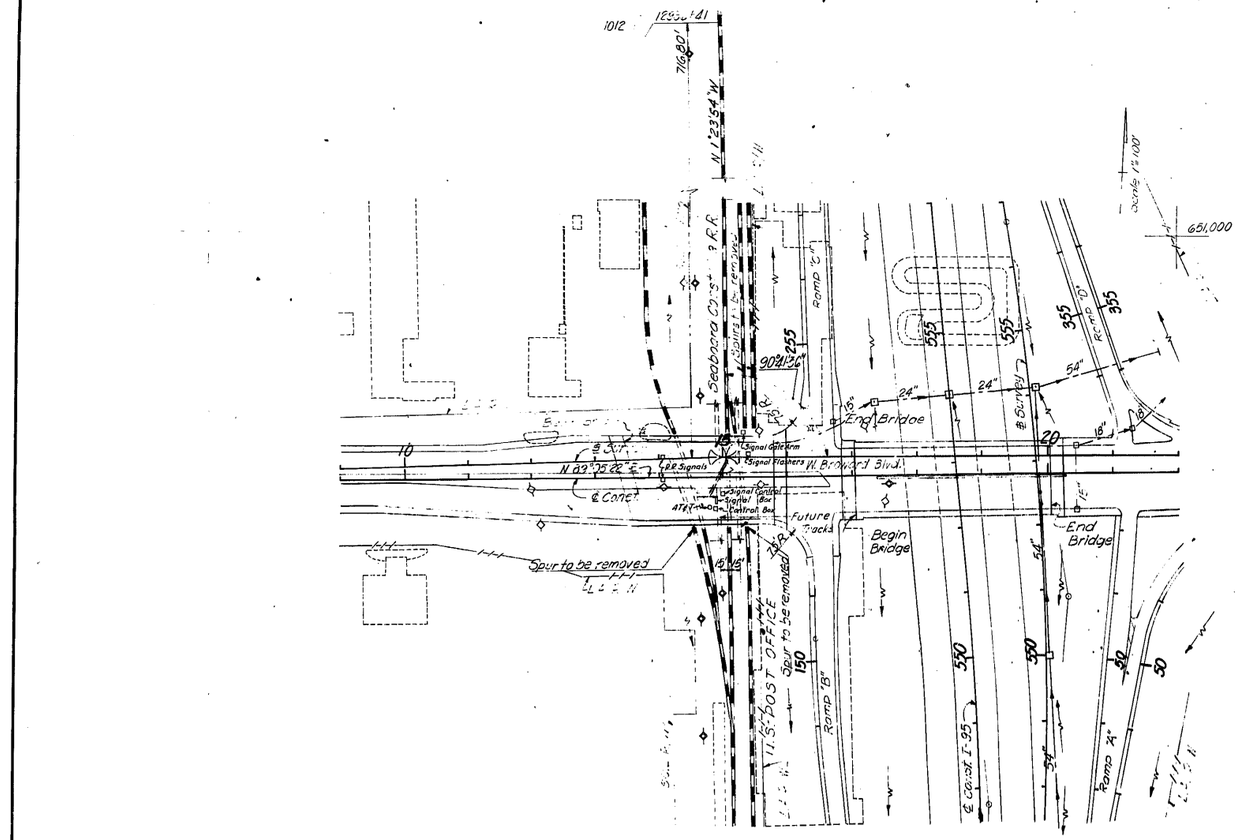
	Designed by	Drawn by	Checked by	Quantities by	Checked by	Approved by
Name	V.A.A./R.A.T.	F.C.	V.A.A./R.A.T.	E.M.H.	E.M.H.	V.A.M.
Date	5-70	6-70	6-71	6-71	6-71	

APPROVED BY: T. [illegible] Engineer of Bridges

Drawing No. 1 of 27

Index No. 10054

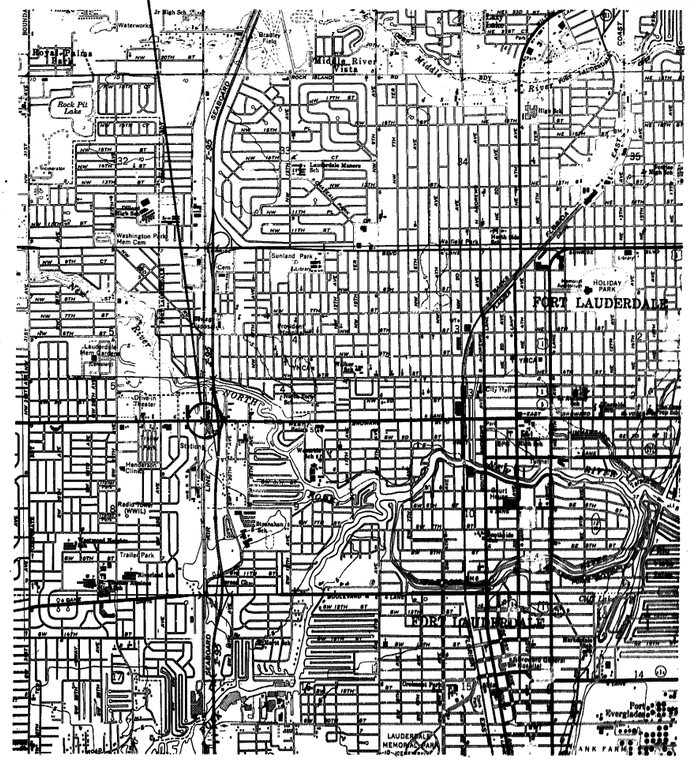
RADER AND ASSOCIATES MIAMI, FLA.



REVISED 1-17-73

FED. ROAD DIV. No.	STATE	PROJECT No.	FISCAL YEAR	SHEET No.
9	FLA.	I-95-1(110)27		A-2

LOCATION OF STRUCTURE



DRAINAGE AREA & LOCATION

EXISTING STRUCTURES

(REFERENCE)	(1)	(2)	(3)	(4)	(5)
FOUNDATION					
OVERALL LENGTH					
SPAN LENGTH					
TYPE CONSTRUCTION					
SIDEWALKS					
ROADWAY WIDTH					
ELEV LOW MEMBER					

DESIGN DATA

STRUCTURE RECOMMENDATIONS
1. LOADING HS 20-44 2. BRIDGE ROADWAY WIDTH 49.50 & 49.50 FT.
3. SIDEWALKS 5'-0"

DRAINAGE RECOMMENDATIONS
1. BEGIN BRIDGE STATION 17+61.50 END BRIDGE STATION 15+83.50
2. CENTERLINE GRADE ELEVATION
3. BRIDGE SKEW ANGLE 17°49'00" @ Begin Bridge Over S.C.L. R.R.
4. CHANNEL BOTTOM, WIDTH ELEVATION SIDE SLOPES 1.5:1
CENTERLINE CHANNEL BOTTOM, STATION
LIMITS OF CHANNEL EXCAVATION RT. LT.
5. CLEARANCE: NAVIGATION: HORIZ. DRIFT: HORIZ.
VERT. ABOVE EL. VERT. ABOVE EL.
6. DRAINAGE AREA
7. WATER STAGE DATA: MAX. STAGE OF RECORD DESIGN H.W. NORMAL FLOW ELEV.
ELEVATION
DATE OF OCCURRENCE
RECURRENCE INTERVAL
8. DESIGN DISCHARGE CFS SOURCE
RECURRENCE INTERVAL YEARS
9. DESIGN VELOCITY FPS

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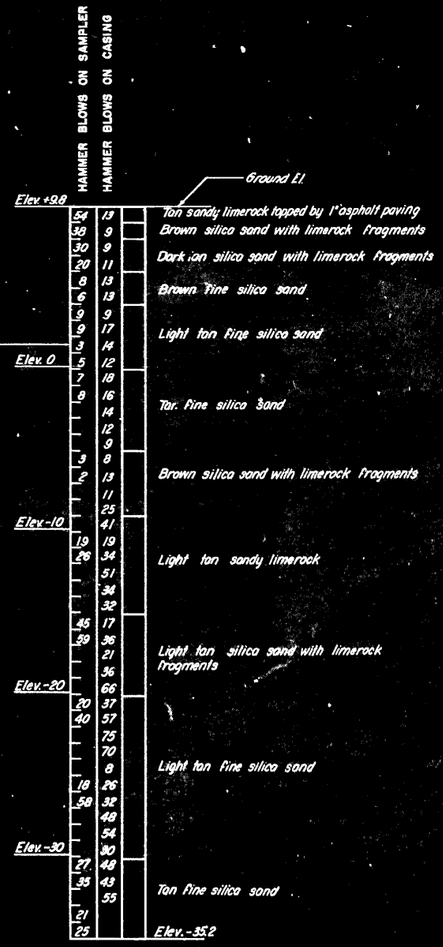
REMARKS, Broward Blvd. and Seaboard Coast Line R.R. crossing is a high point. No ditches required at this site.

RECOMMENDED DISTRICT DR. ENGR.
APPROVED ENGINEER OF DRAINAGE

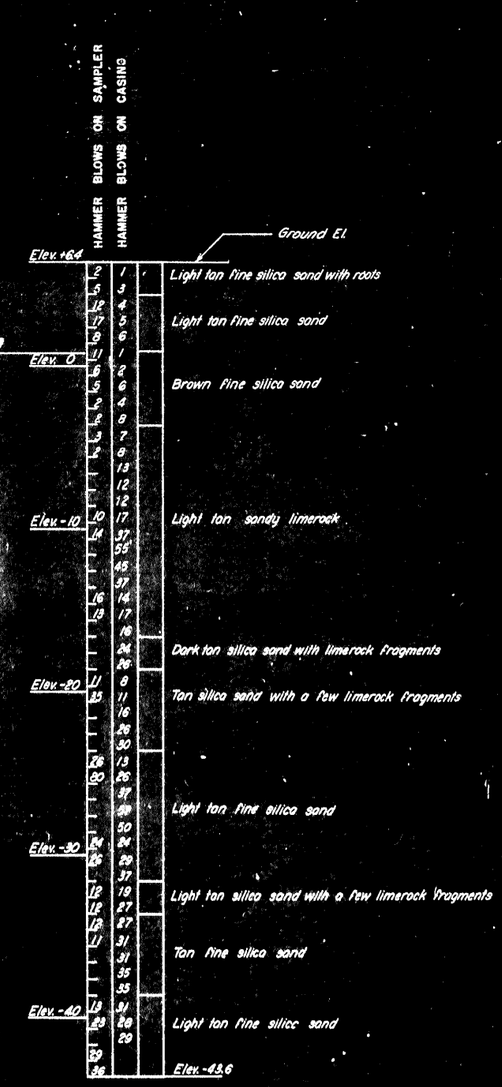
BRIDGE DESIGN DATA SHEET 2 of 27 DD IB 10827

Ed Ric Cridewell Jacksonville — Fla.

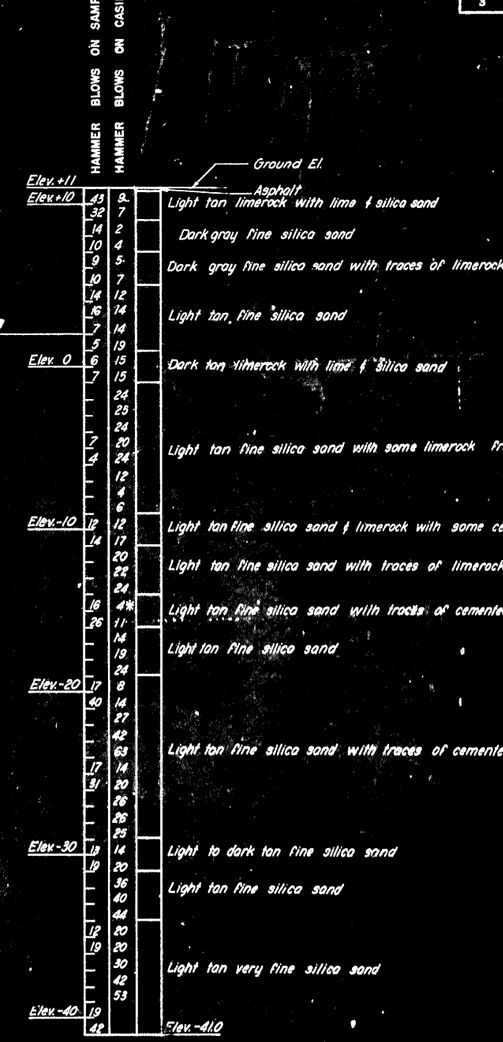
FED. ROAD DIV. No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-95-1(110)27		A-3



HOLE NO. 1
Sta. 13+87, 7' left of Base Line of Survey of Broward Blvd.



HOLE NO. 2
Sta. 14+04, 59' right of Base Line of Survey of Broward Blvd.



HOLE NO. 3
Sta. 14+76, 10' left of Base Line of Survey of Broward Blvd.
*300 Lb. hammer on casing from elev. -14.0'

LEGEND

▼ Ground Water Elevation

Note: For Boring Equipment, See Sheet No. 4

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Page No. 2

BORING DATA

STATE ROAD DEPARTMENT OF FLORIDA
STRUCTURES DIVISION

BROWARD BOULEVARD
OVER S.C.L.R.R.

REVISIONS	
Dates	Descriptions

ROAD NO.	COUNTY	PROJECT NO.
9	BROWARD	86070-3436

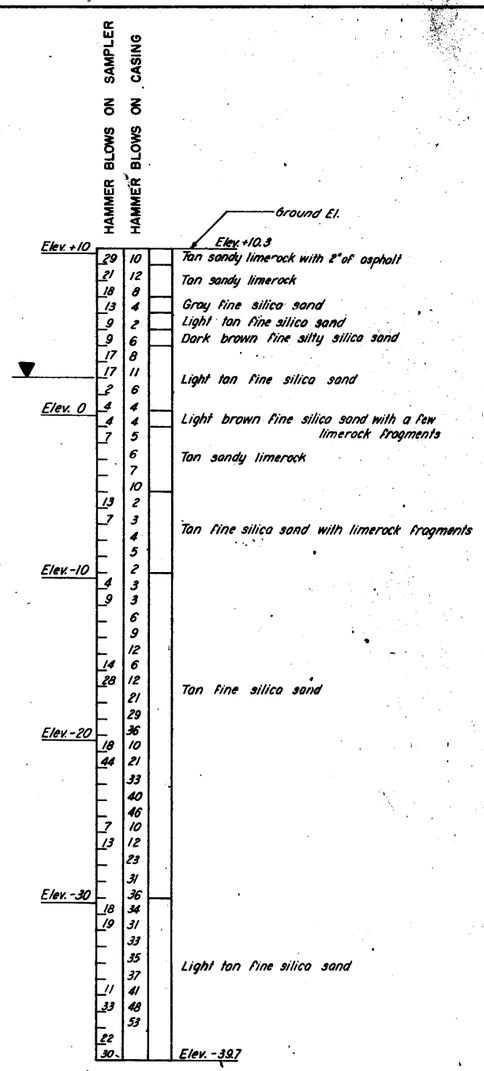
	Names	Dates
Designed by	R. I.	8-70
Checked by	T. C.	8-70
Quantities by		
Checked by		
Supervised by	V. A. A.	

APPROVED BY

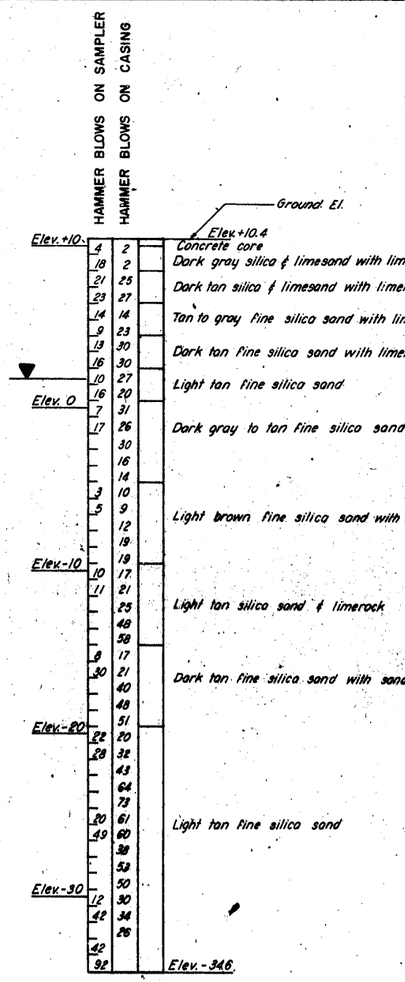
Engineer of Structures

Drawing No.	Index No.
3 of 27	10887

FED. ROAD DIV. No.	STATE	PROJECT No.	FISCAL YEAR	SHEET No.
3	FLA.	I-95-1(110)27		A-4



HOLE NO. 4
Sta. 15+80, 7' left of Base Line of Survey of Broward Blvd.



HOLE NO. 5
Sta. 15+80, 33' right of Base Line of Survey of Broward Blvd.

LEGEND

Ground Water Elevation

BORING EQUIPMENT

Type of Rig : BX (Holes No. 1-E, 2-E & 5-E)
FW-BX (Holes No. 3-E & 4-E)

Spoon — Inside Diameter : 1.5"
Outside Diameter : 2.0"

Casing — Inside Diameter : 2.5"
Outside Diameter : 3.0"

Casing — Hammer Weight :- 140 Lbs. (Holes No. 1-E, 2-E, 5-E); 140 Lbs-300 Lbs (Hole No. 3-E); 300 Lbs. (Hole No. 4-E)

Casing — Hammer Drop :- 30" (Holes No. 1-E, 2-E, 5-E), 30"-18" (Hole No. 3-E), 18" (Hole No. 4-E)

Spoon — Split spoon :- 2'

Spoon — Hammer Weight : 140 Lbs.

Spoon — Hammer Drop : 30"

Borings by Wingerter Laboratories, Inc.
July 1970

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BORING DATA

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STATE ROAD DEPARTMENT OF FLORIDA
STRUCTURES DIVISION

BROWARD BOULEVARD
OVER S.C.L. R.R.

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	9	BROWARD	86070-3436

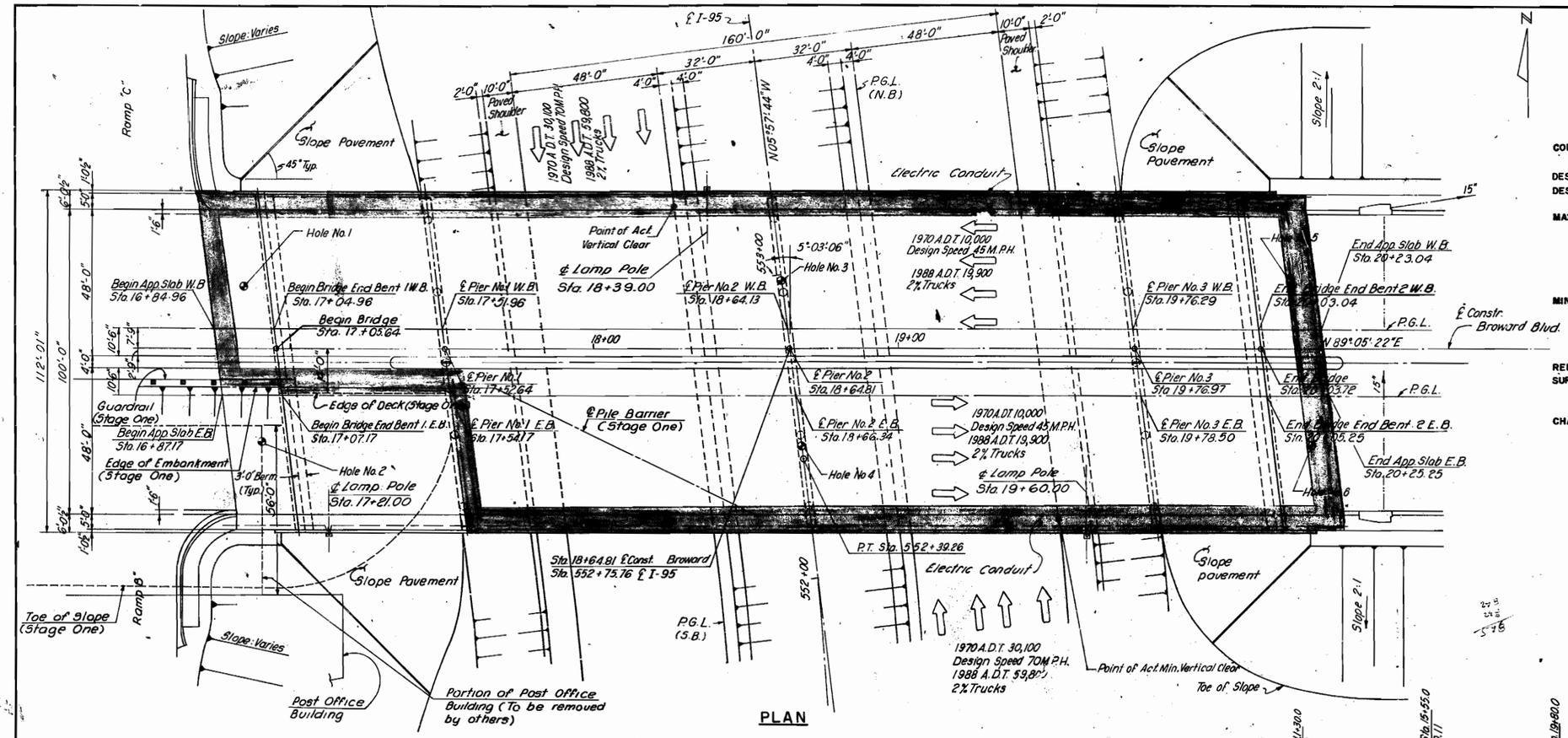
	Names	Dates	APPROVED BY
Designed by	R.T.	8-70	
Detailed by	T.C.	8-70	
Quantities by			Engineer of Structures
Checked by			Drawing No. 4 of 27
Supervised by	V.A.A.		Index No. 10887

A. B. Caldwell Jacksonville, Florida FLA

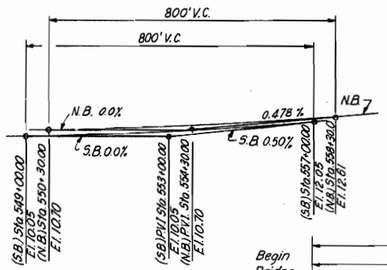
APPENDIX – B6

Existing Soil Boring Information from Previous Projects along the Project Corridor

FED. ROAD DIV. No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-95-1(11C)27		Br1



PLAN



HORIZONTAL CURVE DATA

℄ CONST. I-95

P.I. Sta. 547+76.29
Δ = 6°-57'-11" Lt.
D = 0°-45'
T = 464.11
L = 927.07'
R = 7639.44
SE = 0.029'/ft.

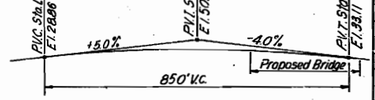
NOTE:

This Project has been designed to allow for Two Stage Construction.

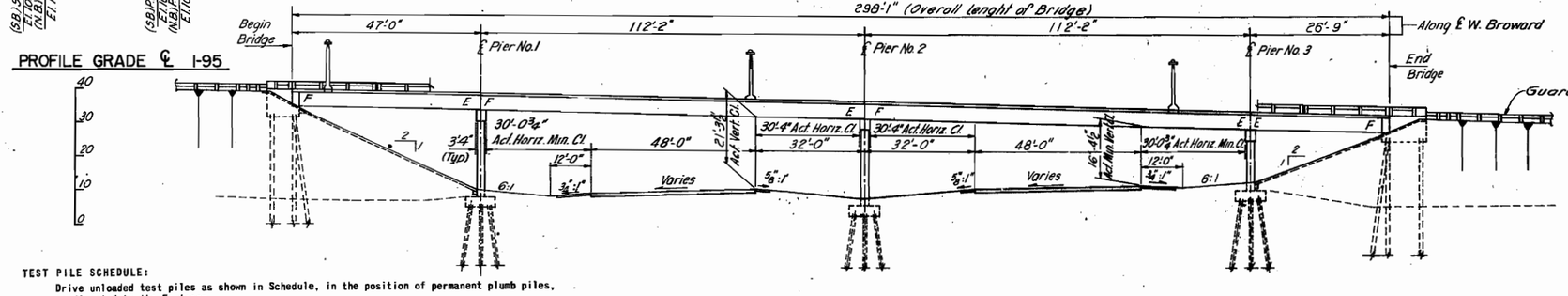
STAGE ONE: The Northern Portion of the Post Office Building (Shown with dash lines) will be removed. This will permit the Construction of the embankment at the beginning of Bridge (See toe of Slope on Plan). The Limits of the Bridge Structures to be built at this Stage are shown with shaded areas on Plan View.

Construct temporary guardrail sufficient to prevent traffic from entering incomplete side of bridge.

SECOND STAGE: The remaining Part of the Post Office Building will be removed (by others) and the Construction of the Bridge Completed.



PROFILE GRADE BROWARD BLVD.



ELEVATION

TEST PILE SCHEDULE:

Drive unloaded test piles as shown in Schedule, in the position of permanent plumb piles, as directed by the Engineer.

END BENT NO. 1:	18"	x 60'-0"
PIER NO. 1:	18"	x 40'-0"
PIER NO. 2:	18"	x 40'-0"
PIER NO. 3:	18"	x 40'-0"

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: F.S.R.D. Standard Specifications for Road and Bridge Construction, 1966 Edition and Special Provisions.

DESIGN SPECIFICATIONS: A.A.S.H.O. Spec. for Highway Bridges, 1969 Edition and approved revisions

DESIGN LIVE LOADING: HS 20-44 With allowance for 15 lbs. per Sq. Ft. for future wearing surface.

MAXIMUM WORKING STRESSES:

Reinforcing Steel = 20,000 P.S.I.
Concrete: Class A = 1,200 " Class PP = 2,200 P.S.I.
Class AA = 1,360 "
Class H = 1,500 "
Class P = 2,000 "

MINIMUM 28 DAY CONCRETE STRENGTH:

Class A = 3,000 P.S.I. Class PP = 5,500 P.S.I.
Class AA = 3,400 "
Class H = 3,750 "
Class P = 5,000 "

REINFORCING STEEL: All Reinforcing Steel shall be intermediate or hard grade

SURFACE FINISH: A Class I Surface Finish shall be given to those surfaces specified in Article 400-22.2 of the General Specifications except outside faces of exterior beams, which shall be given no Special Finish.

CHAMFER: All exposed concrete edges, unless otherwise indicated shall be chamfered ¾".

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	TOTAL
400-1-4	Class A Concrete (Superstructure)	Cu.Yd.	671
400-1-5	Class A Concrete (Substructure)	Cu.Yd.	611
400-2-4	Class 4-A Concrete (Superstructure)	Cu.Yd.	226
400-6-2	Concrete Handrail (Sidewalk)	Lin.Ft.	625
415-1-2	Reinforcing Steel (Bridge)	Lb.	279,870
450-1-1	Prestressed Beams Type II	Lin.Ft.	723
450-1-3	Prestressed Beams Type IV	Lin.Ft.	5,047
455-3-2	Precast Concrete Piling Furnished (18"□) (Prestressed)	Lin.Ft.	7,275
455-4-2	Precast Concrete Piling Driven (18"□) (Prestressed)	Lin.Ft.	7,275
455-9-12	Unloaded Test Piles (18"□) (Prestressed)	Lin.Ft.	180
455-10-90	Test Load (90 Tons)	Each	1
455-55-2	Pile Splices (18"□) Concrete	Each	30
524-2-2	Concrete Slope Pavement (4" Thick)	Sq.Yd.	1,680

Composite Neoprene Bearing Pads: Type II Beams No. Required = 40
Type IV Beams No. Required = 96

All Composite Neoprene bearing pads will be furnished by the Florida Department of Transportation.

NOTES: Payment for incidental items not specifically covered in individual bid items shall be included in the Contract Unit Prices for Bid Items.

Test Loads may be increased in number or omitted as directed by the Engineer.

Temporary Guardrail and Temporary Pile Barrier shall be included in the cost of Class A Concrete (Superstructure).

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PLAN, ELEVATION, GENERAL NOTES AND ESTIMATED BRIDGE QUANTITIES

STATE ROAD DEPARTMENT OF FLORIDA
STRUCTURES DIVISION

BROWARD BOULEVARD OVER I-95

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	9	BROWARD	86070-3436

	Names	Dates
Designed by	V.A.A./R.I.	5-70
Checked by	E.M.	5-70
Quantities by	[illegible]	4-71
Checked by	E.W.H.	6/71
Supervised by	V.A.A.	

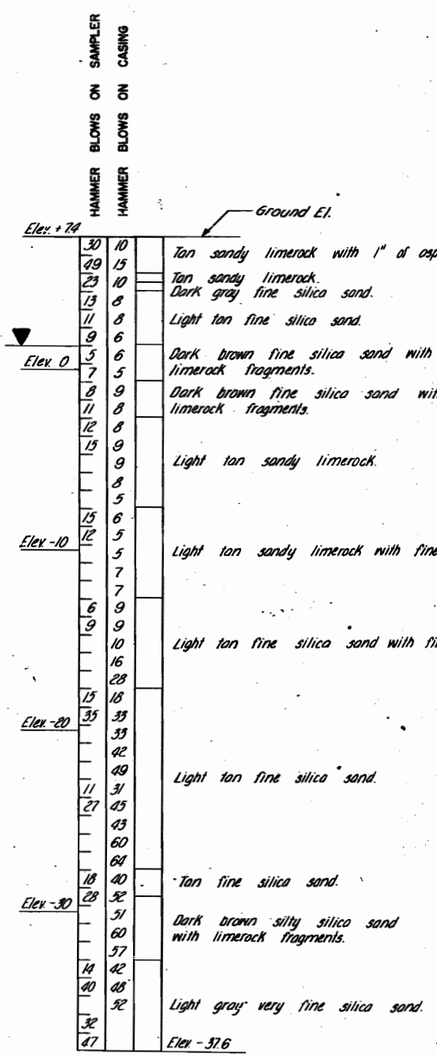
APPROVED BY: T. [illegible] Engineer of Structures

Drawing No. 1 of 20 | Index No. 10884

RADER AND ASSOCIATES MIAMI, FLA.

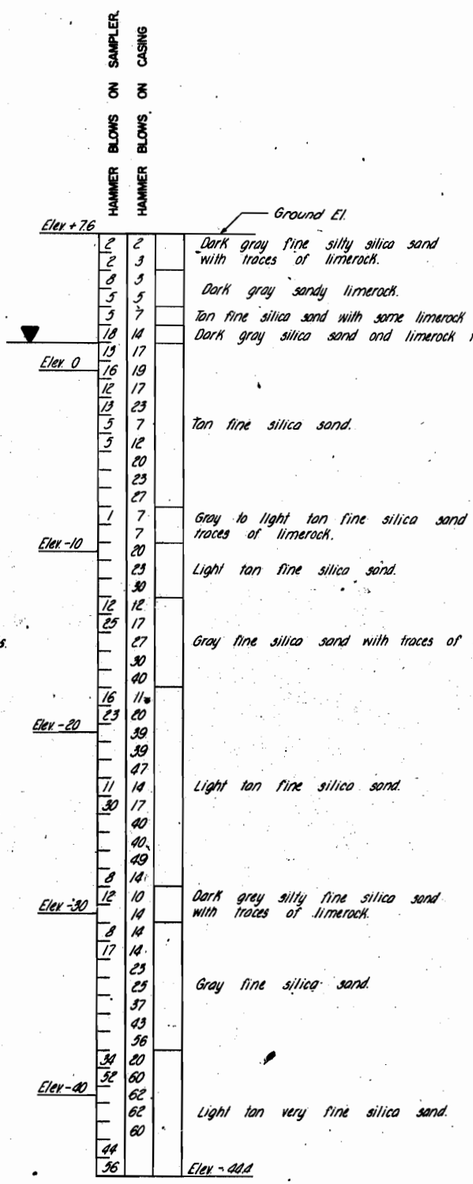
A. B. CAGWELL JACKSONVILLE, FLORIDA FILM

FED. ROAD DIV. No.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.	I-95-1(110)27		B-2



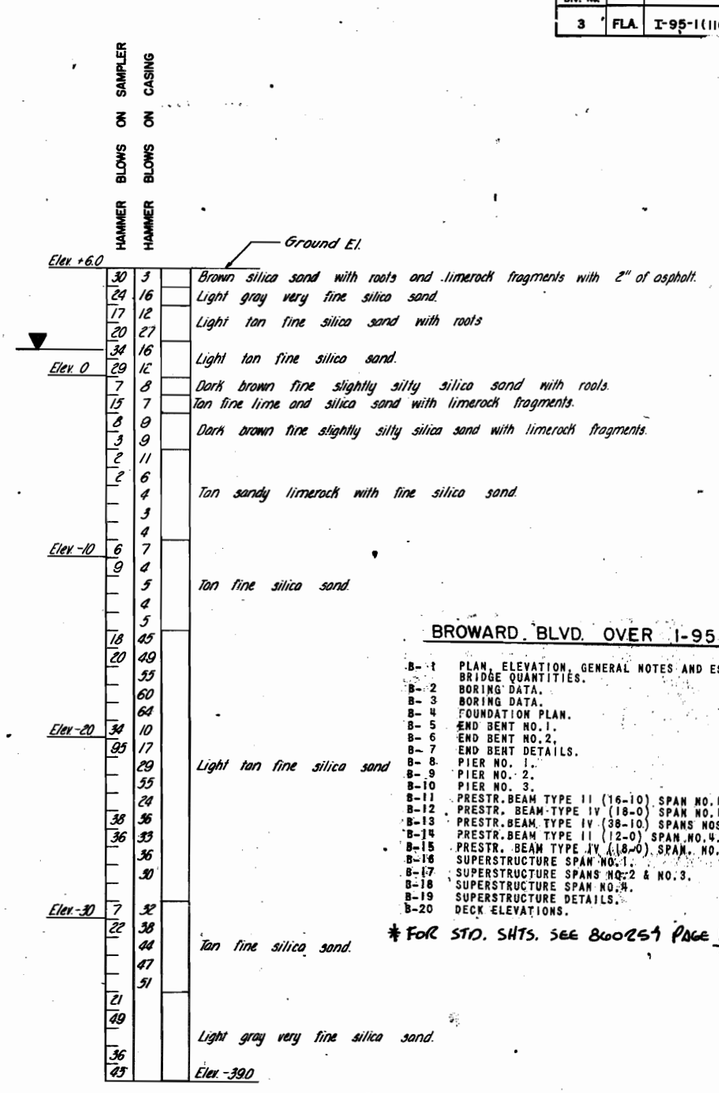
HOLE NO. 1

Sta. 16+91 @ 9' Right of Baseline of survey of Broward Boulevard.



HOLE NO. 2

Sta. 17+00 @ 60' Right of Baseline of survey of Broward Boulevard.
* 300 Lbs. Hammer on casing from elev. -17.4.



HOLE NO. 3

Sta. 18+61 @ 4' Right of Baseline of survey of Broward Boulevard.

LEGEND

▼ Ground Water Elevation

Note: For Boring Equipment See Sheet No. B-3.

BROWARD BLVD. OVER I-95

* FOR STD. SHTS. SEE 860254 PAGE 1 THRU PAGE 6

RADER AND ASSOCIATES MIAMI, FLA.

BORING DATA

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STRUCTURES DIVISION

BROWARD BOULEVARD OVER I-95

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	9	BROWARD	86070-3436

	Names	Dates
Designed by	Q.N.	8-70
Checked by	T.C.	8-70
Quantities by		
Checked by		
Supervised by	V.A.A.	

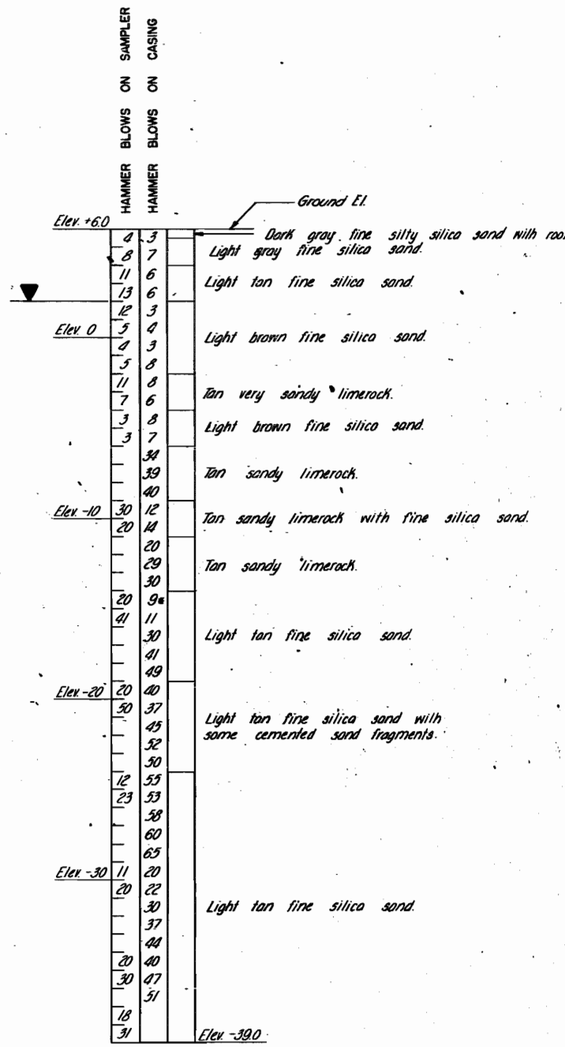
APPROVED BY

Engineer of Structures

Drawing No. 2 of 20

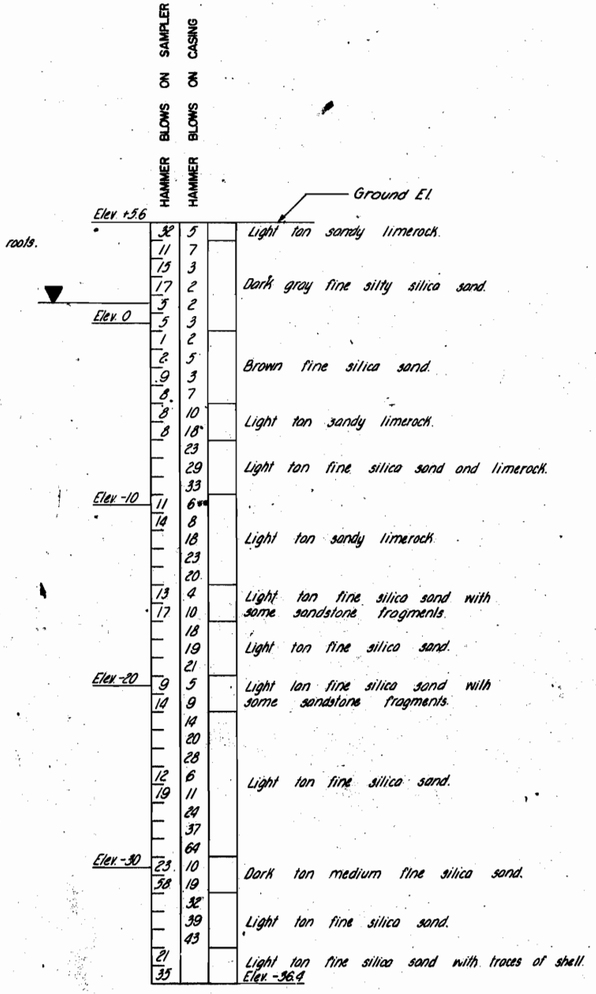
Index No. 10884

FED. ROAD DIV. No.	STATE	PROJECT No.	FISCAL YEAR	SHEET No.
3	FLA.	I-95-1(110)27		B-3



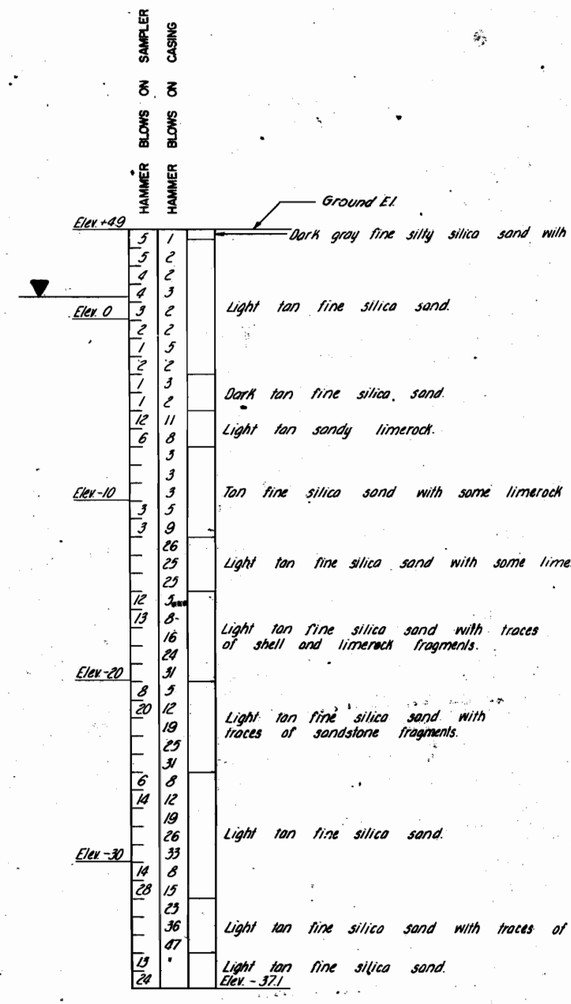
HOLE NO. 4

Sta. 18+69 @ 63' Right of Baseline of survey of Broward Blvd.
* 300 Lbs. Hammer on casing from elev. -14.0.



HOLE NO. 5

Sta. 20+15 @ 8' Right of Baseline of survey of Broward Blvd.
** 300 Lbs. Hammer on casing from elev. -9.4.



HOLE NO. 6

Sta. 20+21 @ 59' Right of Baseline of survey of Broward Blvd.
*** 300 Lbs. Hammer on casing from elev. -15.1.

BORING EQUIPMENT

Type of Rig : FW-BX.
Spoon Inside Diameter : 1.5"
Outside Diameter : 2.0"
Casing Inside Diameter : 2.5"
Outside Diameter : 3.0"

Casing — Hammer Weight : 300 Lbs. (Holes No. 1 & 3); 140 Lbs & 300 Lbs. (Holes No. 2, 4, 5 & 6)
Hammer Drop : 18" (Holes No. 1 & 3); 30"-18" (Holes No. 2, 4, 5 & 6)

Spoon — Split Spoon : 2"
Hammer Weight : 140 lbs.
Hammer Drop : 30"

Borings by Wingerter Laboratories, Inc.
July 1970

LEGEND

▼ Ground Water Elevation

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Page No. 3

BORING DATA

STATE ROAD DEPARTMENT OF FLORIDA
STRUCTURES DIVISION

BROWARD BOULEVARD
OVER I-95

REVISIONS		ROAD NO.	COUNTY	PROJECT NO.
Dates	Descriptions	9	BROWARD	86070-3436

	Names	Dates	APPROVED BY
Designed by	D.N.	8-70	
Checked by	T.C.	8-70	Engineer of Structures
Quantities by			
Checked by			Drawing No. 3 of 20
Supervised by	V.A.A.		Index No. 10884

RADER AND ASSOCIATES MIAMI, FLA.